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Remedial Design  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana  
Agency Interest No. 1275

Prepared by:

Shaw Environmental & Infrastructure, Inc.

**REMEDIAL DESIGN  
7700 EARHART BOULEVARD FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275**

**Prepared by:**

**SHAW ENVIRONMENTAL & INFRASTRUCTURE, INC.**

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## **List of Acronyms and Abbreviations**

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ACM	Asbestos Containing Material
Adventus	Adventus Bioremediation Technologies, Inc.
Agreement	Cooperative Agreement
ARAR	Applicable or Relevant and Appropriate Requirements
ASTM	American Society for Testing and Materials
bgs	below ground surface
COPCs	Constituent of Potential Concern
DOT	Department of Transportation
Elementis	Elementis Chemicals, Inc.
EPA	Environmental Protection Agency Region VI
ERAB	Enclosed Remedial Activities Building
ESA	Environmental Site Assessment
Facility or site	7700 Earhart Boulevard Facility
FS	Feasibility Study
GQAP	Groundwater Quality Assessment Plan
HASP	Health and Safety Plan
HEPA	High Efficiency Particulate Air Filtration
LDAF	Louisiana Department of Agriculture and Forestry
LDR	Land Disposal Restriction
LDEQ	Louisiana Department of Environmental Quality
LDOTD	Louisiana Department of Transportation and Development
NAPL	Non-aqueous phase liquid
NCP	National Contingency Plan
NIOSH	National Institute for Occupational Safety and Health
OCL	Organochlorine
OSHA	Occupational Safety and Health Administration
OVA	Organic Vapor Analyzer
P&A	Plug and Abandon
PID	Photoionization Detector
QA/QC	Quality Assurance/Quality Control
RA	Risk Assessment
RD	Remedial Design
RALs	Remedial Action Levels

## ***List of Acronyms and Abbreviations (Continued)***

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RAP	Remedial Action Plan
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
SAP	Sampling and Analysis Plan
Shaw	Shaw Environmental & Infrastructure, Inc.
Site	7700 Earhart Boulevard Site
S&WBNO	Sewerage and Water Board of New Orleans
THAN	T H Agriculture & Nutrition, L.L.C.
THCC	Thompson-Hayward Chemical Company
TS	Treatability Study
TSD	Treatment, Storage and Disposal
UFS	Underground Facility Structures
UHCs	Underlying Hazardous Constituents
UTS	Universal Treatment Standards
2,4,5-T	2,4,5-trichlorophenoxy acidic acid
2,4,5-TP	2,4,5-trichlorophenoxy-propionic acid
2,3,7,8-TCDD	2,3,7,8-tetrachlorodibenzo-p-dioxin

## **1.0 Introduction**

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### **1.1 Purpose**

This Remedial Design (RD) was prepared for the 7700 Earhart Boulevard Site (Site) on behalf of T H Agriculture & Nutrition, L.L.C. (THAN) and Elementis Chemicals, Inc. (Elementis) (formerly known as Harcros Chemicals, Inc.) in accordance with the Section VI.D of the Cooperative Agreement (Agreement) between THAN, Harcros Chemicals, Inc. the Inactive and Abandoned Sites Division of Louisiana Department of Environmental Quality (LDEQ), and the Louisiana Department of Agriculture and Forestry (LDAF). The objective of this RD is to provide the Remedial Project Plan framework for developing the design documents including plans and specifications for the approved remedy. The Remedial Project Plan includes a Work Plan, Sampling and Analysis Plan, Quality Assurance/Quality Control Plan, Health & Safety Plan, Project Schedule, and an Air Monitoring Plan. This document provides a summary of site conditions requiring remedial action, description of previous remedial actions, a description of the selected remedy and associated remedial action objectives (RAOs), a description of the RD tasks to be completed and a schedule of the completion of these tasks.

### **1.2 Plan Organization**

This report has been divided into the following sections with the inclusion of this introduction:

- **Section 2 - Background.** This section provides a description of the facility and summarizes the nature and extent of contamination. Furthermore, this section presents a summary of previously conducted remedial investigations and remedial actions.
- **Section 3.0 – Media Requiring Remedial Action and Treatment Volumes.** This section identifies the media subject to remedial action and treatment volume estimates.
- **Section 4.0 - Waste Classification and Management.** This section presents the federal, state, and local requirements applicable to properly characterizing and managing waste streams generated during the planned activities.
- **Section 5.0 - Remedial Design.** This section presents the remedial design process including a description of the various design components.
- **Section 6.0 - Remedial Action.** This section describes the tasks associated with implementing the selected remedy.
- **Section 7.0 – Site Work Health and Safety Program.** This section describes the components and the implementation of the health and safety plan throughout the remedial activities.
- **Section 8.0 – Project Schedule.** This section provides the schedule for implementing RD activities.

- **Section 9.0 - Reports and Submittals.** This section describes the deliverables to be prepared in support of the RD, including progress reports and design support deliverables.

## **2.0 Background**

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### **2.1 Site Location and Description**

The facility is situated on an approximately 2.7 acre tract of land located in New Orleans, Louisiana. The facility lies within a residential and light industrial district in the city and is bounded by Earhart Boulevard, Burdette, Pine, and Colapissa Streets (Figure 2-1). The facility coordinates are approximately 29° 57' 32" north latitude and 90° 06' 42" west longitude. The facility is currently not occupied and is situated on land squares 461 and 462 as shown on Figure 2-1. An approximately 40,000 square foot cinder block warehouse building is located on square 461. An asphalt cover is located over the remainder of the property. A layout of the facility illustrating existing site conditions is presented on Figure 2-2. A layout of the existing asphalt cover is shown on Figure 2-3.

### **2.2 Site History**

The property is currently owned by Elementis. Available records indicate Thompson-Hayward Chemical Company (THCC) first occupied the Facility as early as 1931. Operations in 1931 appeared to be restricted to the property identified by the present-day warehouse, land square 461. THCC purchased squares 461 and 462 from Gaylord Container Company in February of 1941. According to site records, pesticide-related operations were initiated at the site during the 1940's with small-scale dry formulation of pesticide products. Liquid formulation was added during the 1950's. The pesticide formulation operations continued through the 1960's until 1977 when all forms of pesticide formulation ended. From 1977 to 1988, industrial activities on the site consisted of the bagging of soda ash material and the warehousing and distribution of several industrial chemicals. These chemicals included dry cleaning fluids and commercial pest control products. All industrial/commercial activities ended at the site in 1988. Since then the property has remained unoccupied.

### **2.3 Previous Environmental Activities**

Environmental activities at the site began in 1987 with the detection of dry-cleaning related chemicals in the Sewerage and Water Board of New Orleans (NOS&WB) drainage system. In March of 1988, the LDEQ issued a compliance order to the owners and operators of the site to address the discharge of tetrachloroethane, trichloroethene, 1,1,1-trichloroethane, and 1,2-dichloroethene into the city's storm sewer system. A related environmental site assessment of the facility was also conducted in 1988 and it indicated impacts to on-site soil by past pesticide

formulation activities as well as dry cleaning chemical storage activities. The facility's cooperation with LDEQ culminated in the issuance of a joint LDEQ and LDAF compliance order on May 8, 1989 to THAN and Elementis to implement a Remedial Action Plan (RAP) and a Groundwater Quality Assessment Plan (GQAP). These actions were implemented in 1989 and 1990. The resulting interim remedial action included:

- Removal and plugging of on-site storm drains and the plugging of sewer lines that leave the property;
- Demolition and off-site disposal of the mixing plant building located in the northwestern section of the site;
- Demolition and off-site disposal of all aboveground tanks;
- Excavation of most of the soil areas and off-site disposal of generated debris and soil media;
- Backfilling of excavated area with clean fill; and
- Placement of an asphalt cover over the property, including the backfilled areas.

Not all on-site soil was excavated during the interim remedial activity. The concrete and soils located under the former pesticide and herbicide formulation areas were left untouched because of waste classification and related Resource Conservation and Recovery Act (RCRA) Land Disposal Restriction (LDR) issues. Prior to this 1989-1990 interim remedial action, the responsible parties made a conservative determination based on analytical data to classify the wastes in these two areas as RCRA F027 listed hazardous waste contaminated media. Specifically, this classification was made after detecting pentachlorophenol, 2,4,5-trichlorophenoxy acidic acid (2,4,5-T) and 2,4,5-trichlorophenoxy-propionic acid (2,4,5-TP) in the former pesticide and herbicide areas. The waste classification of F027 limited available remediation options since there was no commercial disposal facilities in the United States permitted to handle this type of RCRA listing. As a result, a decision was made to contain the waste by placement of the above-mentioned asphalt cover pending development of an appropriate remedial technology or an acceptable disposal plan. A layout of the existing asphalt cover is presented on Figure 2-3.

In 1997, the LDEQ and LDAF entered into a Cooperative Agreement with the responsible parties (i.e., THAN and Elementis) to conclude the remediation of the property. This agreement, which superseded the joint compliance order issued on May 8, 1989, also required the performance of street sampling activities to evaluate the nature and extent of soil impacts adjacent to the property and below the asphalt/paved road surfaces. As part of the sampling activities, soil samples were collected from approximately 75 locations under Earhart Boulevard, Collapissa, Burdette, and Pine Streets; sediment samples were collected and analyzed from 15 storm drain manholes from

the same streets; two on-site soil samples were collected for analysis of 2,3,7,8-tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD); and soil gas samples were collected to evaluate the potential for volatilization during soil disturbance activities that may arise as a result of potential future excavation. The data from this sampling event were combined with those from past sampling activities to determine the nature and extent of the remaining compounds on the property and surrounding areas. Summaries of the Analytical Data collected during previous programs are provided in Appendix A. In accordance with the Cooperative Agreement, a risk assessment was conducted to determine the constituents of potential concern (COPCs) present at the site, the level of risk posed to individuals by the COPCs present in soil on-site and beneath the surrounding street and in storm drain sediments.

The Environmental Protection Agency (EPA) became involved with this site after the completion of the 1989 remediation activity. They conducted a site-related Preliminary Assessment, a Site Inspection, an Expanded Site Inspection, and in 1995 conducted an additional off-site sampling investigation. These site assessment activities involved the analyses of environmental samples collected from both within the facility and from surrounding residential properties, and culminated with the release of a risk assessment report titled "*Baseline Human Health Risk Assessment Thompson Hayward Chemical Company*", Roy F. Weston, April 1996. Following these studies, the EPA concluded that risks posed by the concentration of contaminants detected off-site were within acceptable target risk ranges.

## **2.4 Previous Risk Assessments**

On June 6, 2002, the LDEQ approved the Human Health Risk Assessment (RA) (IT Corporation, October 2001) and the RA (Revision 1)/Addendum (IT Corporation, April 2002). The RA was prepared to meet the requirements outlined in Section VI.B of the Cooperative Agreement (Agreement). The RA used both existing and new data to generate a very protective estimate of the potential risks and/or hazards that could be posed to different types of individuals by the COPCs present at the site and under surrounding streets. The assessment, which evaluated the individuals based on the property's current and potential future land uses, was designed to meet the following requirements:

- Identification of COPCs using all available sampling data;
- Documentation of current and future land uses;
- Documentation of nature and extent of site-related compounds in all media;
- Identification of exposure pathways and potential receptors;

- Performance of toxicity assessment and risk evaluations; and
- Generation of Remedial Action Levels (RALs) for media requiring remediation.

The results of the street sampling and other past sampling activities showed site media to be potentially impacted with certain metals and Organochlorine Pesticides (OCL Pesticides), herbicides, and volatile organic compounds (VOCs). Utilizing these sampling data, the site media presenting a potential to pose unacceptable risks to human health and the environment were identified. These include the on-site surface soils (0 - 4.5' below ground surface (bgs)), on-site subsurface soils (0 - 10' bgs), storm drain sediments, and source-areas located in the former pesticide and herbicide formulation areas. Exposure assessment identified the following groups and scenarios by which they could potentially contact site-related compounds in the soil and sediment:

- Storm drain maintenance workers – current land use;
- On-site facility workers – future land use;
- On-site construction workers – future land use; and
- Construction workers in the surrounding streets – future land use.

These potential receptors were then assessed using three identified exposure pathways, namely:

- Inhalation of volatile compounds in the storm drain sediments or airborne soil, particulate matter and dust;
- Incidental ingestion of sediment or soil; and
- Direct dermal contact with sediment or soil.

Based on the results of these studies preliminary Remedial Action Levels (RALs) were calculated. These RALs are then used to determine site-related media requiring remediation, as well as cleanup levels for each COPC. The RALs, which are presented in Table 2-1 became the Final Remedial Action Levels for the site upon LDEQ's approval of the Human Health Risk Assessment in 2002.

## **2.5 Feasibility Studies**

At the conclusion of RA and determination of the RALs, THAN and Elementis proceeded with preparation of a Feasibility Study (FS) to identify, evaluate, and recommend remedial alternatives for all on-site media subject to remedial action. The initial FS, prepared by Shaw in January 2003, was submitted to fulfill the requirements of Section VI.C of the Agreement. Through the FS,

technology process options were identified and screened to eliminate those technologies that could not be implemented technically and administratively. The technology options passing the initial screen were assembled into alternatives representing a range of treatment and disposal combinations, as appropriate. Each remedial alternative was evaluated for the following criteria:

- Protection of human health and the environment;
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
- Short term effectiveness;
- Long term effectiveness;
- Reduction of toxicity, mobility, and volume;
- Implementability; and
- Cost.

Based on the comparison of the evaluated remedial alternatives, on-site biological treatment combined with source removal was selected as the preferred alternative.

As presented in the initial FS, Adventus Remediation Technologies, Inc. (Adventus) was conducting a Treatability Study (TS) on soils from the Site when the initial FS was presented in early 2003. The TS evaluated the Adventus Daramend<sup>®</sup> technology which enhances and promotes natural biodegradation of target compounds. Results of the TS at the time the FS was prepared and demonstrated a reduction in the levels of OCL Pesticides, however, the reduction was not sufficient to meet the site-specific RALs for Aldrin and Dieldrin. Subsequently, Adventus added a secondary study to the TS which incorporated additional amendments designed to improve the physical characteristics of the soils from the Site. The final results of the Adventus TS were submitted to LDEQ and LDAF as Addendum No.1 to the initial FS in September, 2004. The final results of the Adventus TS did show a reduction in COPC concentrations to levels below the site specific RALs. However, due to increased public concerns related to an on-site biological treatment remedy that may take several years to implement and the need for evaluation of the RCRA classification of the waste streams at the Site, THAN and Elementis submitted the FS Addendum No.2 on December 24, 2004.

Prior to implementation of the initial on-site remedial action in 1989, a determination was made that environmental media (e.g. soil, groundwater, etc.) deemed to be a solid waste should conservatively be classified as a RCRA listed hazardous waste. This determination was based on the mere presence of a hazardous constituent in the waste, and made assumptions regarding the origin of the constituent. However, as articulated in the proposed National Contingency Plan (NCP) preamble, it is necessary to know the source of the waste (or contaminant) to

determine conclusively that a waste is a listed hazardous waste under RCRA<sup>1</sup>. Further, the presence of a hazardous constituent in an environmental media does not automatically make the environmental media a RCRA hazardous waste (Skinner Memo, January 1984). In the Management of Remediation Waste Under RCRA document dated October 1998, EPA stated that where a facility owner/operator makes a good faith effort to determine if a material is a listed hazardous waste but cannot make such a determination because documentation regarding a source of contamination, contaminant, or waste is unavailable or inconclusive, then one may assume the source, contaminant or waste is not a listed hazardous waste. This approach for determination of when contamination is caused by listed hazardous waste was supported by the final NCP preamble (53 FR 51444, December 21, 1988 for proposed NCP preamble discussion; and 55 FR 8758 March 13, 1990 for final NCP Preamble discussion).

In light of the fact that the original classification was based on analytical testing alone, the original classification of all site wastes as listed hazardous waste was overly conservative. To more appropriately classify the environmental media at the site, a comprehensive review was performed of all relevant and available THCC New Orleans branch files, project files, and other documents (including statements of former THCC employees/site workers). It should be noted that not all of these sources were available for review at the time that the original listed classification was made.

Based on this review it was concluded that there is no conclusive documentation which warrants the blanket classification of the constituents in the environmental media at the site as listed hazardous waste under 40 CFR Part 261, Subpart D; thus the original blanket listed waste classification was unnecessarily overly conservative. However, sufficient documentation does exist to indicate that a listed hazardous waste classification is potentially correct for four (4) chemical constituents, when confirmed by analytical testing to be present in environmental media. The four (4) constituents are as follows:

- Perchloroethylene (U210)
- 2,4-D (U240)
- Dimethylamine (U092)
- Parathion (P089).

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1. Listing determinations are often particularly difficult in the remedial context because the listings are generally identified by the sources of the hazardous wastes rather than the concentrations of various hazardous constituents; therefore, analytical testing alone, without information on a waste's source, will not generally produce information that will conclusively indicate whether a given waste is a listed hazardous waste.

Since the impacted environmental media at the Site does not contain a RCRA F027 listed hazardous waste code, excavation and off-site treatment and disposal at a commercial facility is now a viable option for the site waste and has been selected by the LDEQ as the preferred remedial alternative. Although the original preferred remedial alternative of excavation and on-site biological treatment remains a viable remedial alternative, the time for completion of the remedy is expected to be lengthy. The new preferred remedial alternative of excavation and off-site disposal may be more expensive than on-site biological treatment, but it would potentially reduce the schedule for implementation from 2 years to approximately 6 months. Additionally, a remedial alternative of excavation and off-site disposal may pose less risk to the community or the environment during implementation due to the shorter schedule.

The selected remedy of excavation and off-site disposal has been chosen by the LDEQ as the final remedy for the site and is documented in there document "*The Louisiana Department of Environmental Quality FINAL DECISION DOCUMENT for the Final Remedy of Thompson Hayward Site* (December 2005).

### **3.0 Media Requiring Remedial Action and Treatment Volumes**

Based on the results of the RA (IT Corporation, October 2001), Addendum to RA (IT Corporation, April 2002), FS (Shaw, January 2003), and FS Addendum No. 2 (Shaw, December 2004) media requiring remedial action includes the following:

- Debris;
- Liquids;
- Storm drain sediments; and
- On-site soil.

The following subsections provide a description of the media with concentrations of COPCs above the respective RALs and an estimate of the volume of impacted media (debris, liquids, storm drain sediments, and soil) that will require remedial action. Table 3-1 presents a summary of treatment volume estimates for all impacted media.

#### **3.1 Debris**

Debris to be generated at the site consists of the asphalt and crushed limestone forming the temporary cover, the original concrete cover, two underground storage tanks (Tanks 1 and 2), concrete sumps (Sumps 4 and 6), subsurface concrete drains, abandoned monitoring well material, warehouse roof gravel, roofing material, the warehouse building materials and concrete slab. While off-site land disposal of the excavated debris is administratively and technically implementable, the debris classified with RCRA listed waste codes will require treatment for each "contaminant subject to treatment" as defined by paragraph (b) of 40 CFR 268.45 using the technology or technologies identified in Table 1 of 40 CFR 268.45. Since some of the debris at this Site will carry the listed RCRA hazardous waste code U210 for perchloroethylene, an immobilization technology – offsite encapsulation and landfilling – as specified in Table 1 of 40 CFR 268.45 is selected for this particular media.

- **Debris Requiring Encapsulation** - includes concrete sumps and drain lines, concrete cover over the impacted soil, two underground storage tanks, and abandoned well material from MW-5S. The two underground storage tanks are believed to be metal, if so, they will be sent offsite for recycling and become exempt from RCRA. Also, limited data exists for the existing concrete cover, if analytical testing by the Toxicity Characteristic Leaching Procedure (TCLP) demonstrates that off-site encapsulation is not necessary the concrete will be disposed of as RCRA hazardous waste without prior treatment.

- **Construction/Demolition Debris** – includes asphalt/crushed limestone sub base which will be disposed of as non-hazardous material at an industrial landfill. Additionally, if THAN and Elementis elect to take down the warehouse building the general construction debris will include the warehouse wood roof, cinder block walls and concrete foundation. The steel support beams and members will be recycled. The pea gravel and dust on the warehouse roof is not a hazardous waste, but contains pesticides therefore will be disposed of in a hazardous waste landfill. The roofing felt beneath the pea gravel may require special consideration due to the possibility of this material being considered an Asbestos Containing Material (ACM). Results of Asbestos Testing on roofing materials are included in Appendix B.

A large portion of demolition debris generated will consist of the facility's existing cover (Figure 2-3). The existing cover consists of an average of 1.0–1.5 feet thick crushed limestone and a 3-inch thick asphaltic concrete layer that overlies the original concrete cover with the exception of the warehouse area. The original concrete cover, (approximately 175 cubic yards), left in place over the non-excavated soil during the previous Remedial Program, is estimated to be 4-inches thick, and may require treatment prior to land disposal as a RCRA Hazardous Waste. If the results of the TCLP analysis on the concrete and potential soil adhering to the concrete indicate that off-site encapsulation and landfilling is not necessary, the concrete will be disposed of as a RCRA Hazardous Waste. The asphalt cover and limestone subbase will not require treatment.

Approximately 694 cubic yards of asphalt and 2,929 cubic yards of crushed limestone will be disposed of as general municipal waste. The crushed limestone may be used on-site as temporary backfill material. If taken down, demolition of the warehouse and foundation removal will generate approximately 3,365 cubic yards of non-hazardous debris. This non-hazardous characterization is based on samples collected from the building components. Tanks 1 and 2 are 10,000 and 12,000 gallons respectively, and will generate approximately 8 tons (short) of metal debris that will require disposal or recycling. Also, the removal of miscellaneous underground facilities will account for approximately 4 cubic yards of contaminated debris that will require treatment before disposal. A breakdown of the estimated "debris" volumes is summarized in Table 3-1.

### **3.2 Liquids**

Liquids to be generated during the remedial activities include the contents contained in the: two underground storage tanks, one on-site sump, concrete drain lines, water that will be utilized to flush the storm drain system, water used to decontaminate vehicles and equipment used on site in the excavation as well as any contact water collected in the open excavations, due to groundwater infiltration or surface water runoff. Stormwater includes all precipitation and/or surface water

which may be on-site but which does not come into contact with potentially hazardous constituents. Liquids to be managed have been divided into the following categories:

- **Contact-** liquids will be disposed of by deep well injection with pre-treatment to remove solids, at an off-site well injection facility;
- **Stormwater** – will be diverted from coming in contact with potentially hazardous constituents and directed to the nearby Sewerage and Water Board of New Orleans (S&WBNO) drainage system; and
- **Non-Aqueous Phase Liquids (NAPL)** – any NAPL located in Sump No.6 will be disposed of via incineration.

Approximately 55 gallons of phase liquids are anticipated to be removed from sump No. 6. This NAPL will be segregated from all other liquids generated during the remediation. Following the removal of sediments from storm drain lines and manholes on Burdette and Lowerline Streets, the lines will be rinsed with two pipe/manhole volumes of water. The volume estimates of liquids from underground storage tanks and rinsing liquids from storm drain lines are approximately 24,000 and 30,000 gallons, respectively. The volume of liquids estimated to be contained in the on-site concrete drain lines is 703 gallons. A conservative estimate of the volume of water generated by decontamination is approximately 7,700 gallons. Groundwater infiltration during excavation is also expected to account for approximately 99,990 gallons of contact water. The total estimated volume of liquids requiring remedial action is 153,000-gallons as presented in Table 3-1. As necessary, some of the contact liquids may be used for dust control on soils/debris scheduled for offsite disposal. All remaining contact liquids will be held on-site in temporary storage tanks until transported off-site for disposal by deep well injection. As necessary the fluids will be pretreated to remove solids at the deep well facility prior to injection. Stormwater will be directed offsite to avoid contact with potentially contaminated material. Stormwater that contacts contaminated material will be properly contained and treated accordingly. In the event that collected liquids can be treated at a publicly owned treatment works (POTW) or other commercially available treatment facility, disposal by deep well injection may not be necessary.

### **3.3 Storm Drain Sediments**

Storm drain sediment data was collected during the Street Sampling Program (IT Corporation, November 1997) and includes samples collected from manholes along the storm drain system beneath Burdette, Lowerline and Pine Streets. Two sediment samples from Burdette Street and one sample from Lowerline Street contained selected OCL pesticides at concentrations that exceed the RALs. Therefore, storm drain lines and manholes will be cleaned and flushed between sample

locations DM-1 and DM-32 on Burdette Street and between sample location STA-1 and STA-3 on Lowerline Street as presented on Figure 2-2.

Due to the potential impact to sediments in the storm drain system from unknown sources during the flooding of New Orleans after Hurricane Katrina, additional waste characterization samples will be collected. The sediment waste characterization samples from the cleaning of the storm drain manholes will be collected once the material is containerized and temporarily stored on-site. Sediments recovered from flushing of the storm drain lines in Burdette and Lowerline Streets will be disposed of according to the sample analysis results. Sediments characterized as hazardous waste will be disposed of either at a hazardous waste landfill or via offsite incineration depending on the constituent concentrations. If the results of the storm drain sediment sampling indicate that the waste is not characteristically hazardous the sediments will be disposed as non-hazardous material at an industrial landfill.

Figure 2-2 provides the storm drain system layout and previous sampling locations. Storm drain sediments requiring remedial action have been grouped based on the street that they underlie, as described below:

- **Burdette Street** – Storm drain sediments between drainage manholes DM-1 and DM-32. The storm drain main is 10-inches in diameter from DM-1 to DM-2, 12-inches in diameter from DM-2 to DM-3, and 15-inches in diameter from DM-3 to DM-32. The 550- foot long drain line has six manholes in the transect. The manhole depths range from 3 to 4-feet.
- **Lowerline Street** – Storm drain sediments between drainage manhole STA-1 and STA-3. The storm drain main is 18-inches in diameter from ST-1 to the northbound lane of Earhart Boulevard, and 21-inches in diameter from Earhart Boulevard to STA-3. The 400-foot long drain line has four manholes in the transect. The manhole depths range from 6 to 8-feet.

Based on previous sampling activities at the site, the volume of sediment and the concentrations of COPCs (Table 3-2) present in the storm drains is expected to vary. To conservatively account for this variability, the sediment volume calculations assumes that 10 percent of the drain lines and 50 percent of the manholes are filled with sediment. A survey of manhole top and invert elevations was performed by John E. Bonneau and Associates, Inc. and reported in the Additional Storm Drain Chemistry Data Report (Golder Associates, June 1992). The average manhole volume was estimated by using the difference of the top and invert manhole elevations and an assumed

manhole bottom diameter of 3-feet. Volume estimates for sediments in storm drains and manholes are provided in Table 3-1. Approximately 15 tons of sediment from storm drains and manholes will require remedial action. This estimate will likely change due to Hurricane Katrina impacts.

### **3.4 On-Site Soil**

On-site soil requiring remedial action is defined as surface soil and subsurface soil. On-site soil is defined as the soil located on the property (e.g., street curb to street curb) with a depth range from just below the original concrete cover to an approximate depth of 4.5- feet below ground surface (bgs) and subsurface soils are defined as soil from just below the concrete cover to an approximate depth of 10 feet bgs. Surface and subsurface soils are proposed to be excavated from the locations shown on Figure 2-2 and will be sent off-site for incineration. The constituents reported in soil are shown in Table 3-3.

The volume of on-site surface soil requiring remedial action was determined by calculating the volume of the soil subject to remedial action, (e.g. soil with constituent concentrations exceed the surface soil RALs) excavating to a nominal depth of 4.5 feet.

Subsurface soil to be excavated includes any soil located deeper than 4.5 feet bgs with constituent concentrations of COPCs reported above the subsurface RALs. A Pre-Remedial Design survey was conducted in the proposed excavation areas to assist with determining the vertical extent of soil remediation greater than 4.5 feet. The results of the Pre-Remedial Design Sampling Program are included in Appendix A. Currently it is anticipated that excavation deeper than 4.5 feet bgs will only be needed in isolated areas, primarily near MW-5S, near Pre-Remedial Design sample B-4, and Tanks 1 and 2. If post excavation samples collected from the bottom of the excavations contain COPCs above the subsurface soil RALs then the excavation will be extended deeper. However the excavations will not extend deeper than 10.0 feet bgs. Based on these calculations, approximately 4,908 tons of soil requires remedial action and includes 4,027 tons of surface soil and 881 tons of subsurface soil.

## **4.0 Waste Classification and Management.**

### **4.1 Waste Classification**

Solid waste material removed or managed at the site is subject to a variety of classifications, depending upon the type of material and how it is handled. EPA guidance (EPA, 1989) suggests that response actions present a unique situation, since often very little is known about the classification of the constituents (i.e., are they listed hazardous wastes) at the time that the contamination occurs.

There are certain circumstances where data collected at the site do not necessarily provide evidence that contamination is due to a hazardous waste. At this site, however, historical information and the current understanding of the historical operations suggest that existing analytical data could be used as an indication of what hazardous waste codes would apply. Consequently, applicable waste codes were assigned when a particular compound was detected. As stated previously, a comprehensive review of all relevant documentation regarding chemical spills at the site has revealed that there is no conclusive documentation which warrants the blanket classification of the constituents in the environmental media at the site as listed hazardous waste under 40 CFR Part 261, Subpart D; thus the original blanket listed waste classification was unnecessarily overly conservative. However, sufficient documentation does exist to indicate that a listed hazardous waste classification is potentially correct for four (4) chemical constituents, when confirmed by analytical testing to be present in environmental media. The four (4) constituents are as follows: Perchloroethylene (U210), 2,4-D (U240), Dimethylamine (U092) and Parathion (P089). Therefore, when analytical data indicates that these chemicals are present the waste will carry the applicable listed hazardous waste code.

A RCRA characteristic hazardous waste code has or will be assigned when analytical analysis for Corrosivity, Reactivity, Ignitability or Toxicity demonstrate that the material is a characteristically hazardous waste or when the results of total analysis demonstrated that the constituent concentration for a compound listed on the Toxicity Characteristic Leaching Test (TCLP) is at least twenty times greater than the associated TCLP limit. For the purpose of completing this Remedial Design, listed waste codes (applicable when the material is managed) were assigned based on available information regarding historical site operations and analytical data. Additional waste codes may be added if new analytical data demonstrates that other hazardous constituents are present in the waste stream.

Another aspect of waste classification includes the consideration of the type of material being classified. At the site, there are three types of materials which could be considered potential wastes when they are excavated and/or managed. These include the residual NAPLs present in Sump No. 6, debris potentially contaminated with hazardous constituents, and environmental media potentially contaminated with hazardous constituents.

#### **4.1.1 Non-Aqueous Phase Liquids**

The first potential waste material is NAPL material present in Sump No. 6. Classification is relatively straightforward in this case. This pure phase material, referred to as "NAPL" throughout this document, contains hazardous constituents. The hazardous waste codes were assigned strictly based on analytical results and are presented in Table 3-1.

#### **4.1.2 Debris**

The next type of material that will be addressed at the site is debris that may have been contaminated with listed hazardous constituents. 40 CFR 268.2(g) defines debris as, "Solid material exceeding a 60 mm particle size that is intended for disposal and that is: A manufactured object or plant or animal matter; or natural geologic material...." At the site, there are five general categories of material that may meet this definition: (1) concrete sumps and drain lines, (2) metal underground storage tanks, (3) concrete cover material, and (4) asphalt/crushed limestone sub-base (5) if demolished, the warehouse building and concrete slab would also meet the definition of debris.

For the concrete sumps and drain lines and the metal underground storage tanks, the waste codes that applied to the liquid contents within these structures were also applied to the structures themselves. When these structures are excavated for removal, the standards applicable to hazardous material contained within the respective sump, drain line or underground tank may be applied. Similarly, for the concrete located above the soil areas requiring remedial action, the waste codes that are applicable to the surface soil may also be applied to excavated concrete debris if the soil cannot be sufficiently removed. In the event the TCLP analysis are performed on the concrete cover and sumps, the results will be used to more definitively characterize this media..

The warehouse building material and the temporary cap consisting of asphalt fill material, and crushed limestone will be handled as non-hazardous general construction debris. Based on limited asbestos data (See Appendix B) the roof felt beneath the pea gravel will be handled as ACM. The

ACM status of the roofing material may be further evaluated with additional sampling prior to demolition.

The RCRA characteristic and listed waste codes for each type of debris are presented in Table 3-1.

#### **4.1.3 Environmental Media**

The final type of material that will be handled at the site is contaminated or potentially contaminated environmental media. This includes soil, water (rainwater, storm drain fluids, or groundwater), and sediment. EPA's position on the classification of these materials is specified in its "Contained-In Policy" (EPA, 1995). The policy may be applicable in situations when an environmental medium is contaminated with a known hazardous waste. Under the "Contained-In Policy" these media have not been "abandoned", which is a necessary prerequisite to becoming a hazardous waste. However, even though media are not hazardous wastes in the strict sense, the "Contained-In Policy" states that the materials must be handled as hazardous wastes as long as they "contain" the hazardous waste with which they were contaminated. A summary of each environmental media subject to corrective action and the waste codes presently assigned are provided in Table 3-1.

#### **4.2 Land Disposal Restrictions**

Land disposal restriction (LDR) standards (40 CFR 268) may apply to hazardous wastes that are generated due to remedial action where land disposal is planned at offsite disposal facilities. Each individual hazardous waste code has its own set of prescribed treatment standards, which may be based either on achieving a certain concentration for the constituents regulated under that code or on the implementation of a certain treatment technology (e.g., incineration). The applicable standards must be met before land disposal (e.g., landfill or deep well injection) of the waste water and non-waste waters is allowed unless the facility has a "no migration permit" (i.e., deep well injection facility). The applicable standards are the Universal Treatment Standards (UTS) under 40 CFR 268 and should be applied to each waste code as well as the underlying hazardous constituents (UHCs).

The NAPL in Sump No. 6 as well as the contaminated environmental media will be handled in accordance with the LDR standards as described above, using the hazardous waste codes that have been designated. The debris at the site will be managed in accordance with the treatment standards

for hazardous debris outlined in 40 CFR 268.45. The standards prescribed under this section allow for technology-based treatment of debris.

Typically, the concentrations of UHCs in hazardous waste must not exceed UTS for the material to be land disposed without prior treatment. For the completion of this Remedial Design, the LDR standards will be applied to environmental media at the site as follows. With respect to water, a direct comparison will be made with either the conventional LDR standards for the applicable waste codes (40 CFR 268.40) or the UTS under 40 CFR 268.48.

However, under 40 CFR 268.49, alternate treatment standards have been created for contaminated soil/sediment. Per 40 CFR 268.49(c), the alternate treatment standards for contaminated soil/sediment allow the concentrations of UHCs to be up to 10 times the UTS for landfilled soil/sediment. Soil and sediment with constituent concentrations above 10 times the UTS must be treated prior to land disposal.

As stated by EPA in 1998, "under 40 CFR 268.44(h)(3), variances from otherwise applicable LDR treatment standards may be approved if it is determined that compliance with the treatment standards would result in treatment beyond the point at which short- and long-term threats to human health and the environment are minimized. This allows a site specific, risk-based determination to supersede the technology-based LDR treatment standards under certain circumstances".

Tables 3-2, 3-3 and 3-4 compare the detected concentration in each waste medium expected to be generated at the site, to the UTS. Where applicable, the concentrations that exceed ten times the UTS are highlighted. The hazardous waste codes that are potentially applicable based on the measured concentrations are also presented.

## **5.0 Remedial Design**

The purpose of the RD Workplan is to set forth the remedial design criteria for remedial actions which will be undertaken at the facility and to describe the methods and procedures which will be used during the implementation of the work activities. The impacted materials which will be removed, the anticipated progression of the work, the site controls and the anticipated disposition of the materials are described below. For reference, Table 3-1 presents a summary of the estimated volumes and weight of impacted material to be managed. The summary of the work activities to be performed are included in subsequent sections of this RD Workplan. Detailed Technical Specifications for each remedial work activity which will be used are presented in Appendix C.

### **5.1 Remedial Activities and Work Progression**

The major remedial activities which are presently anticipated to be required at the facility include:

- Permitting and pre-mobilization activities;
- Mobilization and set-up;
- Establish and maintain site controls (security, traffic, surface water, odors & air monitoring);
- Monitoring well plugging and abandonment (P&A);
- Cleaning and flushing of off-site S&WBNO storm drain systems;
- Excavation, removal and off-site disposal of the site covers consisting of asphalt, crushed limestone and concrete;
- Excavation, removal and off-site disposal of underground piping, utilities and other underground facilities;
- Excavation, removal and off-site disposal of soil;
- Removal and off-site disposal of the gravel and dust on the warehouse roof and removal of the ACM;
- Removal and off-site disposal of the warehouse building and concrete slab;
- Temporary on-site management, removal and off-site treatment and disposal of collected fluids; and
- Site restoration including, backfill placement, final grading, cap construction and installation of side walks.

In order to complete remedial activities within the site boundaries because of the site's location within a populated area of the city, and to mitigate the potential release of dust or constituents to the environment via air emissions or surface water discharge, the work will be completed in an Enclosed Remedial Activities Building (ERAB). The ERAB will be equipped with air filtration

systems and will be of sufficient size to facilitate completion of the proposed on-site remedial activities. The ERAB will assist with preventing off-site air emissions as well as divert rainfall and surface water runoff away from the open excavations thus minimizing the volume of contaminated water that will be generated. To minimize the potential for off-site air emission to the extent practical all remedial activities that involve exposing contaminated media to the atmosphere will be completed beneath the ERAB. To complete the remedial activities in this manner the site has been divided into Work Areas as shown of Figure 5-1. The Work Area divisions of the site for are defined as:

- Work Area I-A Former Pesticide Area;
- Work Area I-B Former Pesticide Area;
- Work Area – I-C Former Pesticide Area;
- Work Area – II Former Herbicide Area;
- Work Area – III Roof Drain south of Warehouse;
- Work Area – IV Soil near Burdette Street;
- Work Area – V Warehouse Building; and
- Work Area VI Asphalt cover over previously excavated soil.

Several remedial activities are required to be completed in each of the individual Work Areas. However, at a minimum remedial activities including excavation of the concrete cover, removal of the under ground facility structures, soil excavation, post excavation confirmatory sampling and placement of the first lift of backfill material, at the bottom of the excavation, will be performed under an ERAB for work areas I-A,B,C,II and IV. It is likely that some backfilling activities may be completed outside of the ERAB. Furthermore, other surface water controls capable of diverting precipitation away from potentially impacted areas and odor suppressant agents may be utilized, in addition to the ERAB, in the event that site conditions warrant.

## **5.2 Design Criteria**

The following design criteria will be applied to the remedial design of this project:

- The excavation will be terminated when concentrations of COPCs in post excavation bottom confirmatory samples no longer exceed the associated RAL for subsurface soils. However, the excavation will not extend deeper than 10-feet bgs;
- Once the asphalt/limestone cover is removed, it shall be stockpiled in a dry area ready to be used to temporarily backfill an open excavation. Stockpiled asphalt/limestone shall be kept covered in a manner that prevents silt from entering the stormwater drainage system;

- The required excavation at the outside boundary is limited to the property boundary and does not include city streets and clean backfill placed during the previous remedial activities;
- The slope of the excavation should be designed in accordance with OSHA 29 CFR 1926 Subpart P;
- All on-site surface water run-offs must be diverted and any contact with contaminated media must be avoided;
- All water that comes in contact with contaminated media must be contained and used for dust control or, sent off-site for treatment and disposal;
- All field operations should be conducted under an enclosed structure, such as a sprung structure to minimize the potential for emissions;
- The enclosure will meet applicable city codes and requirements;
- The transportation route for incoming and outgoing traffic should avoid the surrounding residential community and exit to Earhart Boulevard directly where possible;
- Sidewalk pavement design will meet Louisiana Standard Specifications for Roads and Bridges;
- Backfill of excavations should be compacted to 90 percent Standard Proctor density; and
- The final soil cover will support and sustain a vegetation cover and will be sloped in such a manner as to prevent ponding of surface water and will drain surface water to the storm drain system located on the surrounding streets.

### **5.3 Technical Specifications**

The following specifications have been prepared and are included in Appendix C:

- C-1 Mobilization, Site Preparation, Construction Facilities, Maintenance, and Demobilization;
- C-2 Enclosed Remedial Activities Building (ERAB);
- C-3 Stormwater Control and Protection;
- C-4 Decontamination;
- C-5 Monitoring Well Abandonment;
- C-6 Storm Drain Line Flushing;
- C-7 Earthwork (Excavation & Backfill);
- C-8 Underground Facility Structure Removal;
- C-9 Warehouse Demolition;
- C-10 Transportation and Disposal; and
- C-11 Site Restoration.

## **6.0 Remedial Action**

### **6.1 Permitting and Pre-mobilization Activities**

Necessary permits, notifications, and approvals will be obtained prior to the initiation of a particular work item. Activities completed in conjunction with the remediation of the site will meet substantive requirements for all permits. Anticipated permits and notifications may include but are not limited to the following:

- Excavation permit;
- Enclosed Remedial Activities Building (ERAB);
- Road closures and street and sidewalk right-of-way easement, permit and notification;
- Power;
- Utilities;
- City water;
- Demolition permit; and
- Asbestos removal permit.

While the objective is to secure the necessary permits and approvals prior to construction, additional needs may be identified during remedial activities due to unforeseen field conditions. In this case, the appropriate items shall be obtained as necessary.

### **6.2 Mobilization, and Site Setup**

Following the approval of the remedial design by the LDEQ, contractor selection, contract execution, mobilization and site set-up activities will commence. Field office and support facilities will be set up at the northwest corner of the property along Earhart Boulevard. A proposed site layout plan for implementation of the remedial activities is provided in Figure 6-1. A general summary discussion of the work to be completed as part of mobilization is provided below. Other site activities will at a minimum include:

- Remove existing fence and construct the perimeter fence and gates as discussed below;
- Disconnect/relocate existing water, gas, electric and phone services;
- Establish temporary utilities (phone, sanitation, water, electricity);
- Establish a two-way communications system with transport vehicles;
- Establish truck scales or develop alternate means of verification of truck weights leaving the site;
- Establish fluids storage and waste storage areas inside the warehouse building;

- As part of site preparation identify and sample off-site borrow sources; and
- Establishing site health and safety procedures and protocol will be performed as part of site set up and will include but is not limited to the following:
  - Personnel training;
  - Preparation of decontamination facilities;
  - Notification of local emergency services;
  - Display emergency phone numbers and escape routes;
  - Equipment and supply check; and
  - Establishment of air monitoring system.

Once the above items have been addressed or are in the process, the contractor can begin mobilization of the heavy equipment to the site. At least 48 hours before excavation is initiated, the Louisiana One Call system (1-800-272-3020) will be notified to minimize the potential for coming into contact with underground utilities.

The technical specifications for mobilization, site-preparation, maintenance and demolition are provided in Appendix C-1.

### **6.3 Site Operational Controls**

#### **6.3.1 Security**

Prior to the commencement of work, temporary chain-link fences, gates, and barriers will be installed around the remediation work area. Figure 6-1, shows the location of the temporary fencing. The existing fence will be removed and a 6-foot security fence with privacy shields and three strands of barbed wire on top will be constructed at the street curb along Burdette, Colapissa and Pine Streets. Construction signs will be posted at 50-ft intervals along the length of the fencing. Additional safety fencing may also be necessary at specific off-site work locations as determined by site conditions. As conditions change, the Site Health and Safety Officer will determine the need for additional fencing to restrict access.

The primary objective of security operations is the control of personnel and vehicles into and out of the site. The primary means of control will be provided by security fencing surrounding the site. Because all remedial activities are being conducted within a residential area, all security requirements must be strictly followed. The off-site transportation of soils will require the frequent movement of trucks to and from surrounding streets. A single personnel entrance gate will be installed and controlled by site security. Sign-in and sign-out requirements will be

imposed at all times during the remedial activities. Project personnel use of this gate will be strictly controlled and available only to those personnel with a specific need. Personnel on site will be logged daily by name and affiliation. Everyone will be required (without exceptions) to read and sign all Health and Safety briefings before entering the exclusion zones. Personnel on site will be included in daily field inspection reports. Example daily field forms are included in Appendix D.

### **6.3.2 Traffic Control**

The designated transportation routes for the remediation area are shown on Figure 6-2. Empty transportation trucks will enter the site through a gate located on Burdette Street. Transport trucks containing contaminated media will exit the site from a strategically placed security gate constructed into the east wall of the warehouse building along Pine Street. Once on Pine Street the transport trucks carrying waste and /or potentially hazardous material will turn west onto Earhart Boulevard and then turn right onto South Carrollton Avenue and proceed onto US Highway 10.

Road closure for Earhart Boulevard is not anticipated. However, if Pine Street or Burdette Street closures are required, the closure of the intersection with Earhart Boulevard will be coordinated with the city in order to assure that operational impacts will be minimized. Prior to any excavation being performed adjacent to a city street, the safety and traffic provisions will be provided for in accordance with the city requirements, including but not limited to, those stated in Section 146-453 of CODE OF ORDINANCES , City of NEW ORLEANS, LA.

Signage meeting U.S. Department of Transportation (DOT), Louisiana Department of Transportation and Development (LDOTD), and City of New Orleans, will be placed, as necessary, to inform local traffic of the construction conditions and any detour routes.

All unauthorized pedestrian traffic will be excluded from the site and off-site work zones. Roads and sidewalks may be temporarily closed to access with alternative routes provided. . Fencing with warning signs will be used to eliminate unauthorized entry of pedestrian traffic into construction areas. Barricades will be securely placed along with adequate illumination for visual warning of the road closure.

### **6.3.3 Environmental Controls**

During the proposed remedial activities and particularly during the excavation and removal of concrete, underground facilities and soil material containing hazardous substances could become exposed, and thus, susceptible to becoming air-borne. To minimize the potential for the release of chemical constituents to the environment via air emissions or surface water discharge environmental controls will be implemented potentially including, but not limited to, odor controls, surface water controls and air monitoring.

The primary engineering mechanism to be employed as an environmental control during excavation activities or other soil disturbance activities will be to complete these activities under a prefabricated mobile ERAB. The ERAB, equipped with an air ventilation exhaust system, will contain any air borne hazardous substances on-site at or near the work areas thus minimizing the potential for off-site migration of air borne chemicals. The air ventilation system will be designed to draw air away from the work zone and filter it through a High Efficiency Particulate Air Filtration (HEPA) system and an activated carbon filtration or thermal oxidation unit. Additionally, completion of the excavation activities under this enclosed structure will substantially control if not eliminate any offensive odors as well as divert rainfall and surface water runoff away from the exposed soil thus minimizing the volume of impacted water that might otherwise be generated. The construction requirements for the ERAB are included in the ERAB Technical Specification provided in Appendix C-2.

In addition to performing the work in the ERAB, other engineering controls will be implemented to assist with minimizing odor within the ERAB and the potential for migration of airborne particulates outside of the structure. These engineering controls are centered on minimizing to the extent practical, the surface area of impacted media exposed to the atmosphere. The scheduling and progression of the work activities are planned as listed below:

- While implementing the underground facility structures removal work only the concrete necessary to access the Underground Facility Structures (UFS) will be removed. Thus the rest of the original concrete will remain as a cover over the remaining unexcavated soil;
- Once the UFS work is completed the excavation of surface soil activities will commence. However the work will be completed in small areas within each work area thus minimizing the surface area of hazardous waste to become airborne and/or come in contact with surface water runoff;
- Requesting rapid turn around on post excavation confirmatory sample analysis;
- Backfilling of a work area once the excavation is completed;

- Water will be sprayed, as necessary, to control dust, and will also control minimal odor problems;
- Spray foams (with stabilizers if necessary) may be used to control vapor emissions within the ERAB. The stabilized foams are aqueous non-draining air foams which form protective barriers over a source of open emissions;
- The excavated soil will not be stockpiled, rather the soil will be immediately placed in roll off boxes or other similar containers and enclosed with plastic sheeting; and
- The foams will also be used as necessary on waste loaded in roll-off containers to minimize the potential for odors during temporary staging.

An Air Monitoring Plan has been prepared to provide baseline and ongoing air quality data during the remedial activities and is included in Appendix E. Real-time monitoring will be completed using a photoionization device (PID), organic vapor analyzer (OVA) or other suitable instruments. Specific air samples will be collected in accordance with the Air Monitoring Plan. A meteorological station will be maintained at the site during the remedial project. Meteorological conditions will be visually monitored as part of the daily activities during the remedial project. Approximate wind speed, wind direction, temperature, and other conditions will be recorded on a regular basis. Atmospheric conditions and precipitation will also be recorded daily. A visual wind direction indicator (wind sock, telltale) will be placed at the site for quick review by operating personnel.

In addition to completion of the work in the ERAB, secondary surface water controls may be employed through the construction of temporary asphalt berms or an approved equivalent placed around the exterior of the ERAB at each of the proposed work areas to minimize seepage under the ERAB. The berm height will be of sufficient height to divert runoff from a heavy precipitation event that could result in 10-inches of rain. Further protective measures will be to minimize the amount of water allowed to accumulate in the open excavations through the infiltration of groundwater or decontamination activities. As a safe guard to prevent overtopping of the excavation wall accumulated water within the open excavation will be pumped from the excavation to avoid excess accumulation. As needed, temporary asphalt berms or approved equivalent berms will be constructed at other on-site and off-site locations to facilitate management of surface water. Further, silt fences will employed as needed, to minimize the migration of highly turbid clean runoff water during the site restoration activities

The roof drain system located on the south side of the warehouse may require modifications to divert rainfall away from the potentially impacted material while completing the work in this area.

The technical specification for Storm Water Control and Protection is included in Appendix C-3. Waste generated during the management of Storm water will be handled in accordance the methods presented in Section 6.8.

#### **6.3.4 Decontamination**

Decontamination stations for both personnel and equipment will be established at designated areas both inside and outside the enclosed sprung structure. The general decontamination procedures which will be followed during the remedial activities at the facility are outlined in this section and presented in further detail in the Decontamination Technical Specification included in Appendix C-4. The specific decontamination methods, equipment, solutions/chemicals, and frequency which will be utilized by the contractor will be provided by the remedial action contractor in a Decontamination Plan. In addition, this plan will provide the locations of the decontamination areas (subject to change with each work area) and the methods for containment and disposal of the water generated during decontamination. The plan will be prepared prior to the contractor mobilizing to the facility.

All equipment used throughout the monitoring well P&A, off-site storm drain cleaning and flushing, on-site excavation, waste management, building demolition and site restoration activities will be decontaminated by the contractor upon exiting the work areas. More frequent decontamination may be performed to protect health and safety and to minimize dust generation. Only in the event of an emergency will any equipment be allowed to exit the work area and enter a previously remediated area prior to being decontaminated.

The decontamination of remedial equipment will include the removal of accumulated dirt and other potentially contaminated material while the equipment is in the established decontamination area. The decontamination methods will be consistent with the Decontamination Plan and will consist of vacuuming, steam cleaning, high-pressure washing or any combination of the above. Rinse water, collected from surface during the decontamination activities may be applied as dust suppressant to opened excavation areas and demolition debris that are designated for disposal in an authorized hazardous waste treatment, storage and disposal (TSD) facility. This water will only be used in areas where it will subsequently be collected for disposal in an authorized hazardous waste TSD facility.

#### **6.4 Monitoring Well Plugging and Abandonment**

As part of the Remedial activities all existing on-site groundwater monitoring wells will be removed or plugged and abandoned. The existing monitoring wells listed below and shown on Figure 2-2 will be abandoned in accordance with state and local regulations: MW-1I, MW-1S, MW-2I, MW-25, MW-3SR, MW-4SR, MW-5S, MW-102S, and MW-103S.

The entire monitoring well located at MW-5S will be removed to at least 8-feet below the existing concrete cover and soil near or adhering to the well will also be removed. Well plugging and abandonment work shall be done in accordance with the "Handbook for Construction of Geotechnical Boreholes and Groundwater Monitoring Systems" prepared by LDOTD and LDEQ, December, 2000, and hereinafter referred to as the "LDOTD/LDEQ Handbook".

The technical specification for plugging and abandonment of existing on-site monitoring wells is included in Appendix C-5. Waste generated during the monitoring well plugging and abandonment work will be handled in accordance the methods presented in Section 6.8.

#### **6.5 Off-Site Storm Drain Remedial Activities**

The off-site drainage systems on Lowerline Street and Burdette Street will be cleaned and flushed as summarized below. The method used to clean and flush the storm drain systems will be approved by the S&WBNO prior to starting the storm drain cleaning work.

Prior to initiating removal of sediments and flushing of the drain line, other drain lines entering the manholes may be temporarily plugged to isolate the lines being cleaned and to contain the fluids within the system being cleaned. The plugs will be constructed and installed in accordance with the guidelines established by the S&WBNO. All personnel, prior to entering manholes, will be trained and qualified for confined space entry. All OSHA or other relevant safety procedures will be compiled with during the performance of these activities.

The sediments and debris in each manhole will be removed and containerized for off-site disposal prior to flushing the drain lines. The removal of sediments from the storm drain lines will be conducted in a manner that minimizes the use of water to the maximum extent possible. Subsequently, the drain line will be flushed with a high volume/pressure sewer cleaner until sediments are removed. All sediments collected from this cleaning will be containerized, stored on-site, and subsequently disposed at an approved facility in accordance with applicable standards

and regulations. All fluids generated from the storm drain line cleaning and operations will be temporally stored on-site pending transportation and off-site disposal at an authorized facility.

The technical specifications for the storm drain line cleaning and flushing activities are included in Appendix C-6. The waste generated during the storm drain cleaning and flushing activities will be handled in accordance the methods presented in Section 6.8.

### **6.5.1 Lowerline Street System**

The Lowerline Street System is comprised of the storm drain lines between manholes STA-1 and STA-3 as shown on Figure 6-3. The storm drain main is 18-inches in diameter from ST-1 to the northbound lane of Earhart Boulevard, and 21-inches in diameter from Earhart Boulevard to STA-3. The 400-foot long drain line has four manholes in that transect. The manhole depths range from 6 to 8-feet.

### **6.5.2 Burdette Street System**

The Burdette Street System is comprised of the storm drain lines between manholes DM-1 and DM-32 as shown on Figure 6-3. The storm drain main is 10-inches in diameter from DM-1 to DM-2, 12-inches in diameter from DM-2 to DM-3, and 15-inches in diameter from DM-3 to DM-32. The 550-foot long drain line has six manholes in that transect. The manhole depths range from 3 to 4-feet.

## **6.6 On Site Excavation Activities**

For each work area, the site controls as discussed in Section 6.3 will be initiated before any excavation activities involving potentially contaminated material can commence. Excavations will be performed in the areas as shown on Figure 6-4. Within any area of the site where materials containing organic compounds are to be excavated, similar procedures will be followed. In general, the ERAB will be set in place and if necessary the temporary surface water diversion berms/dikes will be constructed. Additionally, air monitoring stations will be set up and air quality monitoring will commence. Once the site controls are set up the excavation activities will precede as follow:

- Remove the asphalt and crushed limestone covers and temporarily stockpile at a designated clean material stockpile area;
- Drain the liquids from the UFS and remove the facilities such as tanks, drains, pipes, sumps, etc. before overall soil excavation. Where concrete slabs cover the UFS to be

excavated, the concrete may be removed as a separate operation preceding UFS excavation;

- Excavate and dispose of the remaining concrete cover; and
- Excavate and dispose of impacted soil.

One of the primary considerations during the excavation of the site is air emissions and surface water management. All earthwork activities including material excavation and removal, confirmatory sampling and placement of the first lift of backfill in areas where COPCs have been reported above the RALs, will be completed under the ERAB.

#### **6.6.1 Removal of Asphalt and Crushed Limestone Cover**

An asphalt and crushed limestone cover constructed during the previous remedial activities currently exists over the entire area outside of the warehouse building and extends from street curb to street curb as shown on Figure 2-3. As shown on Figure 2-3, this asphalt and crushed limestone is graded to promote surface water drainage away from the warehouse building to the nearby streets and S&WBNO storm drain system. The asphalt layer is approximately 4 inches thick and the crushed limestone varies in thickness from a few inches near the street curbs to approximately 2 feet near the warehouse buildings. The asphalt and crushed limestone cover provides a barrier between the on-site impacted soil and debris, and rainfall that may fall on the site. Additionally, this cover provides protection to prevent exposure to the impacted material via off-site emissions and direct contact. The cover also provides a stable surface for the set up of site facilities, work areas and transport vehicles that will be on-site to deliver equipment and supplies as well as remove containers loaded with soil and debris. Therefore, to the extent practical the asphalt and limestone cover will remain intact until after the warehouse building is demolished. However, as necessary, the cover will be removed in small areas defined by the work areas to access impacted material (concrete, UFS, and soil located below). Excavation, removal and off-site disposal of the asphalt and crushed limestone cover will be the final removal activities implemented prior to placement of the final graded cover.

This clean asphalt and crushed limestone material will be removed and sent to an off-site landfill for disposal as non-hazardous industrial waste. If required by the disposal facility, samples will be collected to confirm that the material is not a hazardous waste. The removal will be achieved with an excavator or approved equivalent equipment. It is anticipated that the final excavation of the asphalt cover and crushed limestone cover in clean areas will not be completed beneath the ERAB. However, the work will be completed in such a manner as to minimize the off-site migration of dust, and highly turbid surface water runoff. As necessary, clean water or other dust

suppressant agents may be applied during these work activities to control dust emissions. Also, silt fences and temporary berms will be constructed to minimize the off-site migration of any highly turbid water.

The technical specifications for the Earthwork (excavation and backfill) activities are included in Appendix C-7. The waste generated during the storm drain cleaning and flushing activities will be handled in accordance the methods presented in Section 6.8.

### **6.6.2 Removal of Existing Concrete Cover**

The original concrete cover that existed during the operational activities of the facility was not removed from certain areas during the previous remedial activities and currently remains beneath the asphalt and crushed limestone cover in work areas I, II, III and IV, as shown on Figure 6-4. The original concrete cover will be sampled, characterized, removed, and properly disposed of based on the test results. Initially, the excavator bucket will be used to break the concrete. If needed, a concrete hammer attached to an excavator or equivalent may be utilized to break the concrete cover into pieces.

To mitigate the potential release of chemicals to the environment via air emissions or surface water discharge and to minimize odors, all excavation activities of concrete in areas of known or suspected soil impacts will be completed in an ERAB as presented in Section 6.3.

The technical specifications for the Earthwork (excavation and backfill) activities are included in Appendix C-7. The waste generated during the concrete excavation activities will be handled in accordance with the methods presented in Section 6.8.

### **6.6.3 Removal of Underground Facility Structures**

The on-site UFSs to be removed consist of concrete drain lines, concrete sumps and underground storage tanks 1 and 2. Prior to removal of any structure any fluids that may be present in the in the structures will be removed and staged for disposal of as described under Section 6.8. Any personnel entering the excavated area which is defined as a confined space must be trained and certified prior to entry. The concrete drain lines along the southwest side of the warehouse building will be removed. Additionally, concrete sumps including Sump 6, Sump 4, and Sump SC-1 along with the drain lines between the sumps will be demolished and removed. Figure 6-4

provides the location and the available details of the sump and drain lines. Personnel will not be permitted to enter the excavated trenches unless the trenches are shored or the sides are sloped for safety. These excavations will extend to a depth of about a foot beneath the bottom of the underground unit, even if below the groundwater table. Based on the available data, it is believed that high concentrations of organic compounds will be encountered in the areas of the underground facilities.

There are two underground storage tanks (Tank-1 and Tank-2) located on the northwest side of the warehouse in Work Area I-B, to be removed. The removal of the storage tanks will proceed after first pumping out the contents present within the tanks. The integrity of each tank will be assessed first and the approximate depth and limits of the area to be excavated for removal of the tanks will be measured, determined, recorded, and marked on the ground. The excavation will be carried out with an excavator or equivalent equipment. If necessary, supporting structures for the excavation walls will be provided as needed to prevent sloughing. It is assumed that due to the relatively shallow water table, the tanks are anchored underground to prevent uplift or floating.

To mitigate the potential release of compounds to the environment via air emissions or surface water discharge and to minimize odors, all excavation activities completed in areas of known or suspected impacts will be completed in an ERAB as presented in Section 6.3. The technical specifications for the underground facility structures work are included in Appendix C-8. The waste generated during the removal of the UFS will be handled in accordance with the methods presented in Section 6.8.

#### **6.6.4 On-site Soil Excavation Activities**

After the asphalt, crushed limestone, concrete covers and underground lines, sumps, and tanks have been removed, the remaining of soil will be excavated for disposal. It is anticipated that the excavations may be by backhoe, front end loader, bull dozer, or similar construction equipment. The excavations will at a minimum extend vertically until approximately 4.5 feet bgs and will include all soil defined as surface soil. Subsequently, based on analytical results, the excavations may be advanced deeper until the concentrations of COPCs are reported below the subsurface RAL. The vertical extent of the excavations will include subsurface soil which has been defined to a maximum depth of 10.0 feet bgs. The horizontal extent of the excavations are defined by street/property boundaries, clean backfill placed during the previous remedial activities and areas where the soil does not pose a risk as demonstrated in the RA. The areas to be excavated are shown on Figure 6-4.

As shown on Figure 6-4, there are three areas where it is currently known that the vertical depth of the excavation will be to approximately 10 feet bgs and will include surface soil and subsurface soil. These areas are the soil near the underground storage tanks, the soil near monitoring well MW5S and the soil near Pre Remedial design sample B-4.

In all other areas the soil will be excavated in pre-defined lifts with the vertical extent of the excavation being defined by the results of post excavation confirmatory samples collected from the bottom of the excavation. It is anticipated that the initial excavations in these areas will extend vertically to, or very near to, the groundwater table, estimated to be approximately 4.5-feet bgs, and will include soil identified as surface soil. Once the surface soil is excavated, the excavation activities will be discontinued to allow for the collection of post excavation confirmatory soil as presented in Section 6.6.5. The results of the post excavation bottom soil samples will be compared to the subsurface RALs. The excavations will proceed deeper only at the locations where COPCs are reported above the subsurface RALs. The horizontal boundaries of the additional subsurface soil excavations will be defined by the sampling grids defined and established as part of the post excavation sampling presented below. It is anticipated that if RALs are exceeded at the excavation bottom an additional one to two feet of soil will be excavated in each subsurface grid then additional subsurface post excavation confirmatory soil samples will be collected. If necessary, the excavation will be extended deeper in similar one to two foot intervals with horizontal boundaries defined by sampling grids. No excavation is anticipated to extend deeper than 10 feet bgs.

As the excavation approaches the boundaries of a given area, it will be sloped to approximately 1.5H:1V to provide stability for the adjacent areas. When the excavation approaches an adjacent area that has already been excavated and backfilled, it is anticipated that some of the backfill will have to be removed to complete the excavation. Prior to any excavation being performed in the area between Burdette Street and the property boundary, the traffic along that street must be controlled in accordance with the city requirements.

After the excavation has been completed, the excavated area will be measured in plan and elevation depth for documentation. The measurements of the excavations will be by a Professional Land surveyor licensed in the State of Louisiana.

To mitigate the potential release of constituents to the environment and to minimize odors, all excavation activities completed in areas of known or suspected contamination will be completed

in an ERAB as presented in Section 6.3.3. The technical specifications for the Earthwork (excavation and backfill) activities are included in Appendix C-7. The waste generated during the soil excavation activities will be handled in accordance the methods presented in Section 6.8.

#### **6.6.5 Confirmatory Soil Sampling**

A Sampling and Analysis Plan (SAP) has been prepared and is provided in Appendix F. The SAP outlines the protocols to be followed during post excavation confirmatory sampling, defines the frequency of sample collection, the constituents to be tested, the approved EPA SW-846 test methods to be used as well as the Quality Assurance/Quality Control procedures to be implemented during the sampling activities. The protocols set forth in the S&A Plan consistent with those required by the LDEQ and generally include the following:

- **Sample Frequency** - Once the target depth of the excavation is reached (e.g bottom of surface soil, bottom of excavation lifts and/or bottom of underground storage tanks, samples will be collected as discrete samples from the center of a grid pattern defined by the geometry of the bottom of the excavation to be assessed. At a minimum one sample will be collected for every 20 by 20 feet of open excavation. Additional samples may be collected based on field observations.
- **Sample Analyses** - All soil samples will be analyzed for the COPCs for the media being assessed. The analyses will be performed by a contract laboratory approved by the LDEQ following approved EPA SW-846 Methods.
- **Quality Assurance/Quality Control (QA/QC) Program** - A QA/QC sampling program will be implemented as a systematic process that controls the validity of the analytical results by measuring the accuracy and precision of the analytical method and sample matrix as well as develops expected control limits and uses these limits to detect anomalous events. The QA/QC samples will be collected in sample batches for the required samples types, frequency and analyses as presented SAP.
- **Split samples** - as requested by the LDEQ, split samples will be collected and provided to the LDEQ for analysis by the LDEQ's laboratory of choice.

#### **6.7 Warehouse Demolition**

The warehouse building located in the northeast corner of the site as shown on Figure 2-1, is for the most part structurally stable and does not contain potentially hazardous substance thus requiring remediation. However, the building has sustained damage as result of Hurricane Katrina and is in need of repairs. During the upcoming bidding process for the remedial activities, price quotations will be obtained for the demolition and off-site disposal of the building; such that the cost difference between repairing the building verses demolition and

disposal can be compared. If the owners elect to demolish the building, the procedures discussed in this RD Workplan will be implemented. In the event that the owners elect NOT to remove the warehouse building, the scope of work presented in the RD Workplan that pertain to the warehouse demolition will NOT be implemented will be coordinated with the City of New Orleans. The LDEQ will be notified in writing prior to commencement of the additional demolition activities.

The warehouse covers nearly 40,000 square feet, is approximately 25 feet tall on the sides and has a flat roof with an elevated roof in the middle section. The building is constructed on an approximate 4 inch concrete slab with cinder block walls, supported by steel beams and has wood roof cover with rolled roofing, tar and pea gravel. Several exhaust fans exist on the Earhart and Colipissa sides of the elevated roof section.

During the previous remedial activities the former office space and all chemical products were removed. Subsequently, the building was vacuumed of residual dust that may have been present in the interior rafters and building components and the entire interior and exterior of the building was pressure washed. With the exception of miscellaneous tools and two approximate 10, 000 gallon empty poly ethylene storage tanks the warehouse building is currently empty.

Once the off-site and on-site remedial activities are completed and all potentially hazardous materials have been removed from the site, and the warehouse building is no longer being used for temporary waste storage and liquids management, the building will be demolished and disposed off-site as general construction debris. Demolition will be conducted using conventional equipment, and may include: wrecking balls, grapppling equipment, bulldozers, chain saws, pavement breakers, and other miscellaneous equipment. No explosives of any kind will be permitted. The building structures will be temporarily supported and reinforced as necessary during demolition. The warehouse demolition activities will proceed as follows and will not be completed beneath an enclosed sprung structure:

- Verification that all necessary demolition permits have been obtained and a copy of the permits located on-site;
- Establish site controls necessary for surface water management, dust suppressant and air monitoring during the demolition activities;
- Removal using industrial vacuums with air filtration to minimize air emissions and off-site disposal of the pea gravel and accumulated dust/silt located on the roof (this task will be completed regardless of the owners decision regarding the demolition of warehouse;
- Removal and off-site disposal of the roof tar paper as Asbestos Containing Material (following all applicable federal, state and local laws;

- Removal of all internal items which can be removed without damaging the stability of the structure, therefore reducing the need for additional reinforcements;
- Removal of all walls and corrugated siding;
- Removal of the roof;
- Removal of the support structure; and
- Removal of the concrete floor slab, foundation, any identifiable subsurface facility structures.

Upon accumulation of an appreciable quantity of building debris, the material will be reduced in size, and relocated to an on-site designated loading area for subsequent transportation to the predetermined disposal facility. The technical specifications for demolition of the warehouse building and removal of the concrete slab are included in Appendix C-9. The waste generated during the warehouse and concrete slab demolition will be handled in accordance the methods presented in Section 6.8.

## **6.8 Waste Management and Disposal**

During the completion of the on-site and off-site remedial activities hazardous and non-hazardous waste will be generated. The four materials which could be considered wastes when they are excavated and/or managed include: debris, soil, liquids, and storm drain sediments. Applicable RCRA listed waste codes as well as potential RCRA characteristic waste codes for each media type are presented in Table 3-1. The definition of each waste stream and the estimate volumes to be generated are discussed in detail in Section 3.0. This section presents a general discussion of the waste management, and transportation and disposal procedures to be implement during the remedial activities. The technical specifications for Transportation and disposal are included in Appendix C-10. The pea gravel/dust on the warehouse roof is not a hazardous waste but contains pesticides and we will dispose of it in a hazardous waste landfill as debris.

At all times the waste will be managed in accordance with applicable federal, state and local laws. To the extent practical, the waste will be segregated and managed in such a manner as to not mix hazardous waste with non hazardous waste. At all times during completion of the work, precautions and safe guards will be implemented to prevent any migration of the waste and potential exposure of the community and nearby residents to the waste. Waste such as debris, storm drain sediments and fluids generated during the off-site cleaning and flushing of the storm drain lines will be containerized in LDOTD approved containers and transported to the site for temporary storage and off-site disposal. Waste generated inside the ERAB will be placed in lined LDOTD approved containers (e.g. truck beds and/or roll-off boxes) and will remain inside the

enclosed structure until the liners have been placed in such a manner as to totally encapsulate the waste and the containers have been decontaminated. Once these safe guards have been employed, the waste will be removed from the ERAB and temporarily staged in the warehouse in a designated staging area. Additionally, site controls to prevent off-site migration will be employed during the management of non hazardous waste generated on-site during remedial activities that will not be completed under the ERAB. Such wastes may include those generated during the removal of asphalt and crushed limestone cover, demolition of the warehouse, placement of backfill, and construction of the final graded soil cover.

### **6.8.1 Waste Management, Transportation and disposal**

To minimize the impacts to traffic in the area and facilitate the scheduling of waste transportation during periods in the day that have the least potential to affect nearby residents (such as after morning or before evening rush hour traffic or during periods when local students may be arriving or departing from nearby schools) waste will be temporarily stage on-site in designated areas pending off-site transportation during low traffic volume times. The locations of the on-site liquids management area and the loaded roll-off box staging area are shown on Figure 6-1.

#### **6.8.1.1 Liquids Management Area**

Contact liquids generated from the draining of the concrete drain lines and underground storage tanks 1 and 2, flushing of the storm drain lines, decontamination of personnel and equipment, pumping of groundwater and surface water from the open excavation, and any other activity that may generate hazardous or potentially hazardous liquids will be managed in a designated area within the warehouse. Pre-treatment of the liquid waste on-site is anticipated to be minimal and will only involve solids removal. The two existing on-site polyethylene tanks each with an approximate storage capacity of 10,000 gallons will be used in the liquids management process. The two tanks will be connected in series to assist with sediment removal. Liquids to be managed will be placed in the first tank and the sediments will be allowed to fall out of suspension prior to be transferred to the second tank. Once a sufficient volume of liquids are accumulated, the liquids will be transferred to a Vacuum truck, manifested and transported off-site to an authorized disposal facility. If necessary, to meet the facilities permit limits, additional treatment to remove solids will be performed on the liquid waste at the disposal facility prior to disposal via deep well injection. As necessary during the remedial activities and once the remedial activities are completed and the liquids management operations are no longer needed the

solids accumulated through this process will be stabilized and sent off-site for disposal. The polyethylene storage tanks will be removed and sent off-site for disposal as a solid waste.

The NAPL in Sump No. 6 will be containerized in LDOTD approved containers, properly labeled, and remain segregated from all other waste prior to being sent off-site for incineration.

#### **6.8.1.2 Transportation and Off-site Disposal**

Prior to the removal of any material from the designated work areas where waste is known to be impacted by hazardous substances, material loading areas will be established inside the ERAB. The loading area will be constructed such that all material and fluids falling on the area will be diverted into the work area. Clean synthetic materials will be used in the loading area to ensure soils/debris from the excavation area is not tracked off-site.

Clean plastic or tarps will be used in the loading area to ensure soil/debris from the excavation area is (roll-offs will be loaded within the enclosure) not tracked off-site. Each truck bed or roll-off will be lined with plastic sheeting prior to waste loading. To minimize the potential for migration of the waste and minimize air emissions while being temporarily staged on-site and during transportation, materials may be stabilized on-site with fly ash or by other appropriate means. Additionally, the plastic sheet will be of sufficient size and thickness to totally cover the sides and top of the loaded waste thus also minimizing the potential for migration. As needed, rear gate seals will be available on each truck to further minimize any potential leakage. All truck beds and or roll-offs will be covered with tarpaulins (tarps) to secure the material during transportation. The material loaded on the truck bed will have sufficient mound beneath the tarp to promote rainwater run-off, thus minimizing the influx of water into the truck bed. Foam with a stabilizer may be used as needed on top of the material in the truck bed and/or roll-offs to suppress any odors.

Each truck will display placards consistent with the manifest and DOT regulations. Prior to and after being loaded, the exterior of each truck will be visually inspected for loose material which may require removal prior to exiting from the site. The trucks will be decontaminated by pressure washing or other means as necessary prior to leaving the site.

An on-site scale will be provided to obtain weights of transported material and to aid in complying with weight restrictions under applicable law. Also, the contractor will secure the use

of certified scales. If at any time during the project, the certified scales differ from the on-site scales by more the 10 percent, the contractor will investigate and resolve the discrepancy.

#### **6.8.1.3 Manifesting**

Standard Hazardous Waste Manifests will be used with each load of material removed from the site. The specific manifest used will depend on the state in which the waste is disposed.

#### **6.8.1.4 Transportation**

Clean, empty roll-off containers will be delivered by the Transportation and Disposal Contractor (T&D Contractor) in accordance with the Transportation and Disposal Plan. The empty waste containers will be temporarily stored on-site in a designated area. As needed, the containers will be moved into the ERAB for material loading. Movement of the containers on-site to the temporary staging area, into the ERAB and from the ERAB to the temporary on-site waste staging area will be the responsibility of the Remedial Contractor and will be completed using a roll-off bin truck or equivalent. Once loaded, tarped and decontaminated, the loaded containers will be temporarily staged on-site in a designated area pending off-site transportation and disposal. It is anticipated that large tractor trailers will only be used for delivery of empty containers and removal of loaded containers.

Each waste container, and as necessary the transport tractor trailers, will have placards which conform with the U. S. Department of Transportation Requirements and other applicable laws. Each truck used to transport material to the disposal facility will have a unique truck number clearly placed on the front bumper to facilitate tracking of the material. Also, the site personnel will establish sufficient means of communications with each truck driver while in transit to and from the facility. Transportation will be closely tracked to ensure all necessary documentation is kept and to verify no releases of material has occurred in transit.

The material will be transported following all applicable federal, state, and local laws and regulations. The proposed transportation route to be followed by the truck drivers is provided as Figure 6-2. The proposed T&D procedures has accounted for site access, and entering and exiting the city, with all turns which must be made across on-coming traffic controlled by traffic lights. Only in the event of an emergency will any transport vehicles be allowed to park on Earhart Boulevard, and in the event that vehicles must be parked on Earhart Boulevard the appropriate authorities will be notified and arrangements for traffic control will be made. All truck drivers will be trained and will be fully aware of the requirements of the Contingency Plan in the event of

an emergency. The transportation Contingency Plan will be submitted with the T&D Plan by the selected Contractor and will include emergency contingency procedures which will be implemented in the event of spillage during transit.

## **6.9 Site Restoration**

### **6.9.1 Backfill Placement**

After the excavation is completed, the bottom of the excavation confirmation tests meets the RALs, and boundaries of the excavation are measured by a Land Surveyor, the area will be backfilled with clean fill. The detailed requirements for the placement of backfill material are included in the Site Restoration Technical Specification provided in Appendix C-11. The backfill materials, as specified in Technical Specification, will be procured from an approved borrow source and hauled to the site with clean dump trucks. The dump trucks will unload the backfill materials at the designated load/unload zone of each Work Area. Prior to departure from the site the dump trucks used for the transportation of backfill material will be cleaned and all loose soil will be removed from the dump truck. Although the material is clean and does not contain hazardous substances, migration of backfill material or any other material from the site by the dump trucks to the surrounding streets will not be permitted.

The objective of the backfill procedures is to return the facility to a geotechnically sound condition. The placement of backfill material will be constructed in accordance with the following specifications:

- Material will be substantially free of organic or other deleterious matter;
- Material will be placed in 12-inch thick loose lifts and properly compacted;
- Material will be sloped to allow for the collection of precipitation in one general area during backfilling;
- Material will be compacted to at least 90 percent of the maximum dry density and at moisture content of within +/- 5% of optimum as determined by the Standard Proctor Compaction Test; and
- The field density (ASTM D-2922) and moisture content tests (ASTM D -3017) will be performed at a minimum frequency of one test per 1000-cubic yards of compacted backfill material.

If applicable, the surface of the backfilled areas will be graded to drain to temporary sumps and covered with a temporary cover. This will permit collection of precipitation which has not contacted organic compounds to be diverted for discharge off-site with other site drainage water.

Filter Fabric (if employed) will keep this water from being turbid since the filter fabric will minimize the erosion and migration of soil particles with the water. This temporary grading will be employed when the ERAB is relocated to another work area and the newly placed backfill material is exposed to the elements. This temporary grading and filter fabric may not be necessary, depending on the actual scheduling of the final graded cover. Once removed the non-hazardous crushed limestone of the existing cover may be used as a source for temporary backfill.

Backfilling will continue to the approximate surrounding grade. Quality control procedures will include inspection and testing sufficient to determine that the backfill material meets the specifications listed above. The field test procedures will adhere to ASTM standards and will be documented and recorded for final documentation.

### **6.9.2 Cap and Side Walk Restoration**

The clean backfill will be covered with a final cap consisting of approximately 6 to 12 inches of topsoil and a vegetative cover. The cap will be graded to facilitate drainage away from the site. Final grading will be completed to return the excavated areas to design elevations and drainage as shown on Figure 6-5. Materials will be placed and compacted as described in the Site Restoration Technical Specifications included in Appendices C-11. Following final grading, a final topographic survey will be completed to document as-built conditions.

Once the final graded cover is constructed the side walks existing prior to the implementation of the remedial activities in 1989 will be replaced. The locations where sidewalks are to be constructed are shown on Figure 6-6. The sidewalks will be constructed in accordance with the requirements of the City of New Orleans and generally will include: a minimum 4-inch thick 304 aggregate sub-base covered with a 4-inch thick class A concrete reinforced with 6 x 6x w2.9 x W2.9 wire mesh sloped at 1/4-inch per 1-foot.

### **6.9.3 Site Clean up and Demobilization**

All equipment will be monitored for proper decontamination prior to leaving the site. As site construction equipment is no longer required, it will be decontaminated and demobilized from the site. At the completion of the project all temporary facilities, rental equipment, and contractor-owned equipment will be removed from the site as specified in Decontamination Technical Specification included in Appendix C-4. The Site Manager will verify that the site is clean and restored to an acceptable condition before demobilizing the remaining site resources.

## **7.0     *Site-Work Health and Safety Program***

Health and safety requirements for activities associated with remedial actions at the site are contained in the Health and Safety Plan (HASP) included in Appendix G. The HASP describes the minimum health and safety guidelines to protect on-site personnel, visitors, and the public from physical harm and exposure to materials at the site. The HASP contains information on standard health and safety procedures, engineering controls and safe work practices, personal protective equipment, control zones, personnel and equipment decontamination, exposure monitoring, training, medical surveillance, and mitigation of accidental spills and discharges. The contractor will have the responsibility for all health and safety activities during the completion of remedial activities. The HASP will be adopted and implemented by the selected contractor or the contractor will develop their own HASP that at a minimum meets the requirements of the HASP provided in Appendix G and all appropriate OSHA regulations.

## **8.0     *Project Implementation Schedule***

The detailed construction schedule is presented in Figure 8-1. In summary, the field work will likely take approximately 6 months. Based on this duration, if LDEQ approval of the Remedial Design is received by May 1, 2006 and a remediation contract can be executed by June 1, 2006, the field work portion of project should be completed by the end of the year.

## **9.0 Reports and Submittals**

### **9.1 Daily Field Reports**

Documentation will be performed to maintain a concise record of all activities and a sequence of events. Field inspectors will be responsible for keeping a field book of all activities related to the site work, and for completing a daily report summarizing the daily activities. Field forms will be provided for specific activities which require documentation on a regular basis. The use of the field forms will ensure a precise recording of the required information in a consistent format.

Field forms to be completed, at a minimum, are as follows:

- Daily Field Report;
- Transportation Summary Reports;
- Weather Data Summary;
- Calibration of Air Monitoring Equipment;
- Field Air Monitoring Conditions;
- Soil and Water Sampling Parameters;
- Health and Safety Violations and Accident Reports;
- Tailgate Safety Meeting; and
- Job Safety Analysis.

Example field forms are provided in Appendix D.

### **9.2 Progress Reports**

Monthly written progress reports will be prepared and submitted to the LDEQ and LDAF. Consistent with the Cooperative Agreement these reports shall at a minimum (1) describe all data gathering and planning; (2) contain a status report on all field activities; and (3) include all results from sampling and analysis, and all other data received by Respondents pertinent to any work performed at the site.

### **9.3 Completion Report**

At the completion of the remedial activities, a report will be prepared and distributed in accordance with the agreement. This report will summarize all work performed and any work scope changes, as well as include quality control and health and safety performance data, as-built drawings, laboratory data reports, and site photographs.

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## **TABLES**

**TABLE 2-1**  
**FINAL REMEDIAL ACTION LEVELS FOR SOIL AND SEDIMENT**  
**REMEDIAL DESIGN**  
 7700 Earhart Boulevard Facility  
 New Orleans, Louisiana  
 Agency Interest Number 1275  
 Page 1 of 1

FINAL REMEDIAL ACTION LEVELS												
For Storm Drain Sediment				For Surface Soils				For Sub-Surface Soils				
Constituent of Concern	CAS #	Target Cancer Risk Level of 1 x 10 <sup>-5</sup> (mg/kg)	Constituent of Concern	CAS #	Target Cancer Risk Level of 1 x 10 <sup>-5</sup> (mg/kg)	Target Non-Cancer Risk Hazard Level of 1 (mg/kg)	Lower of Cancer Risk Level 1 x 10 <sup>-5</sup> and Non-Cancer Hazard Level of 1 (mg/kg)	Constituent of Concern	CAS #	Target Cancer Risk Level of 1 x 10 <sup>-5</sup> (mg/kg)	Target Non-Cancer Risk Hazard Level of 1 (mg/kg)	Lower of Cancer Risk Level 1 x 10 <sup>-5</sup> and Non-Cancer Hazard Level of 1 (mg/kg)
4,4'-DDD	72-54-8	1285.36	ARSENIC	7440-38-2	13.98	269.70	13.98	BERYLLIUM	7440-41-7	124.68	1531.77	124.68
DIELDRIN	60-57-1	21.33	BERYLLIUM	7440-41-7	1.00	367.63	1.00	CHROMIUM	7440-47-3	NA	11599.58	11599.58
GAMMA CHLORDANE	5103-74-2	1200.48	CHROMIUM	7440-47-3	NA	2783.90	2783.90	4,4'-DDD	72-54-8	7712.14	1872.95	1872.95
4,4'-DDT	50-29-3	1285.36	4,4'-DDD	72-54-8	61.70	449.51	61.70	CHLORDANE	57-74-9	7202.86	1800.72	1800.72
ALPHA CHLORDANE	5103-71-9	1200.48	CHLORDANE	57-74-9	57.62	432.17	57.62	ALDRIN	309-00-2	120.43	87.74	87.74
ALDRIN	309-00-2	20.07	4,4'-DDE	72-55-9	61.70	449.51	61.70	DIELDRIN	60-57-1	127.95	146.23	127.95
HEPTACHLOR	76-44-8	75.83	ALDRIN	309-00-2	0.96	21.06	0.96	4,4'-DDT	50-29-3	7712.14	1872.95	7712.14
CHLORDANE	57-74-9	1200.48	DIELDRIN	60-57-1	1.02	35.10	1.02	ALPHA BHC	319-84-6	324.96	NA	324.96
ALPHA BHC	319-84-6	54.16	4,4'-DDT	50-29-3	61.70	449.51	61.70	GAMMA BHC (LINDANE)	58-89-9	1574.83	877.40	877.40
GAMMA BHC (LINDANE)	58-89-9	262.47	ALPHA BHC	319-84-6	2.60	NA	2.60	TOXAPHENE	8001-35-2	1861.16	NA	1861.16
TOXAPHENE	8001-35-2	310.19	GAMMA BHC (LINDANE)	58-89-9	12.60	210.58	12.60	ENDRIN	72-20-8	NA	877.40	877.40
			TOXAPHENE	8001-35-2	14.89	NA	14.89	HEPTACHLOR	76-44-8	454.95	1462.34	454.95
			ENDRIN	72-20-8	NA	210.58	210.58	TETRACHLOROETHENE	127-18-4	39370.69	29246.79	29246.79
			HEPTACHLOR	76-44-8	3.64	350.96	3.64					
			HEPTACHLOR EPOXIDE	1024-57-3	1.80	9.13	1.80					

Notes:  
 NA - Not Available

**TABLE 3-1**  
**SUMMARY OF TREATMENT VOLUME ESTIMATES AND HAZARDOUS WASTE CODES**

REMEDIAL DESIGN  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana  
Agency Interest Number 1275

Media	Volume Estimates		Waste Information		
	Units*		Potential RCRA Characteristic Waste Codes**	RCRA Listed Waste Codes***	LDRs
<b>1. Debris</b>					
	yd <sup>3</sup>	tons (short)			
Concrete Sumps, and Drain Lines, abandoned monitoring a. well material, MW-5S	4.0	8.2	D012, D013, D020, D027, D029, D031, D039, D040	U210	Hazardous debris must be treated prior to land disposal in accordance with 40 CFR Part 268.45
b. Concrete Cover	175.0	355.0	D012, D020, D031, D039, D040	U210, U240	Hazardous debris must be treated prior to land disposal in accordance with 40 CFR Part 268.45
c. Underground Storage Tanks (metal)	1.2	8.1	D020, D029, D030, D040	U210	Hazardous debris must be treated prior to land disposal in accordance with 40 CFR Part 268.45
d. Asphalt Cover	694.0	1,406.3	not applicable	not applicable	Debris that has not been in contact with hazardous media can be disposed of as municipal waste
e. Crushed Limestone Subbase	2,929.3	2,722.0	not applicable	not applicable	Debris that has not been in contact with hazardous media can be disposed of as municipal waste
f. Warehouse General Construction debris (180 tons of steel NOT included)	1,740.0	3,525.0	not applicable	not applicable	Debris that has not been in contact with hazardous media can be disposed of as General Construction Debris

**TABLE 3-1**  
**SUMMARY OF TREATMENT VOLUME ESTIMATES AND HAZARDOUS WASTE CODES**

REMEDIAL DESIGN  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana  
Agency Interest Number 1275

Media	Volume Estimates		Waste Information		
	Units*		Potential RCRA Characteristic Waste Codes**	RCRA Listed Waste Codes***	LDRs
g. Warehouse Concrete Foundation	1,319.0	2,672.0	not applicable	not applicable	Debris that has not been in contact with hazardous media can be disposed of as General Construction Debris
<b>Subtotal 1. Debris</b>	<b>6,863</b>	<b>10,697</b>			
<b>2. On-Site Soil</b>	<b>yd<sup>3</sup></b>	<b>tons (short)</b>			
a. Surface Soil	2,711.5	4,027.0	D012, D020, D031, D039, D040	U210, U240	Constituent concentrations greater than 10 times UTS
b. Sub-Surface Soil	592.0	881.0	D012, D020, D031, D039, D040	U210, U240	Constituent concentrations greater than 10 times UTS
<b>Subtotal 2. On-site Soil</b>	<b>3,304</b>	<b>4,908</b>			
<b>3. Storm Drain Sediments</b>	<b>yd<sup>3</sup></b>	<b>tons (short)</b>			
Storm Drain Sediments	13.3	15.3	D012, D013, D015, D020, D031	U210	Constituent concentrations greater than 10 times UTS
<b>4. Contact Liquids</b>	<b>ft<sup>3</sup></b>	<b>gallons</b>			
a. Liquids in Storm Drain Lines	4,063.2	30,397.0	D012, D013, D015, D020, D031	U210	Constituent concentrations greater than 10 times UTS

**TABLE 3-1**  
**SUMMARY OF TREATMENT VOLUME ESTIMATES AND HAZARDOUS WASTE CODES**

REMEDIAL DESIGN  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana  
Agency Interest Number 1275

Media	Volume Estimates		Waste Information		
	ft <sup>3</sup>	Units*	Potential RCRA Characteristic Waste Codes**	RCRA Listed Waste Codes***	LDRs
<b>4. Contact Liquids (continued)</b>		<b>gallons</b>			
b. Liquids in Concrete Drain Lines	94.0	703.4	D020, D029, D031, D039, D040	U210	Constituent concentrations greater than 10 times UTS
c. Liquids in Tanks	3,234.9	24,200.0	D020, D029, D039, D040	U210	Constituent concentrations greater than 10 times UTS
d. NAPL in Sump No. 6	8.1	60.5	D012, D013, D020, D027, D029, D039, D040, D031	U210	Constituent concentrations greater than 10 times UTS
e. Decontamination Water	1,029.0	7,700.0	D020, D029, D039, D040	U210	Constituent concentrations greater than 10 times UTS
f. Groundwater Infiltration	13,368.0	99,990.0	D020, D029, D039, D040	U210	Constituent concentrations greater than 10 times UTS
<b>Subtotal 4. Contact Liquids</b>	<b>21,797</b>	<b>163,051</b>			

**Notes:**

\* A 10% contingency has been added to calculations to account for possible design variations.

\*\* RCRA "D" codes are based on the "Rule of 20" and will be confirmed by TCLP analysis

\*\*\* Analytical testing will be performed for further waste characterization prior to disposal. This characterization will also include analysis for four (4) potential RCRA listed chemical constituents: perchloroethylene (U210), 2,4-D (U240), dimethylamine UTS - Universal Treatment Standard  
LDR - Land Disposal Restriction

**TABLE 3-2**  
**COMPARISON OF CONCENTRATIONS IN STORM DRAIN SEDIMENTS AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Parameter	CAS#	Fraction	Units	Max Hit	Sample Name														
					Sample Location Code		Sample Date	Sample Interval (ft bps)	RCRA Listed Waste Code	RCRA Characteristic Waste Codes (Assumed by the "Rule of 20")	UTS (mg/kg)	10xUTS (mg/kg)	Burdette	Burdette	Burdette	Burdette	Burdette		
					DM-1-99-SED	DM-1-01 *												DM-2-99-SED	DM-2-02 *
					Sample Date														
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\* Note: OP Pesticide, Herbicide and Semivolatile data from STA-1, STA-2, DM-1 & DM-2 were collected during the Phase II GQA, May 1993.

**TABLE 3-2**  
**COMPARISON OF CONCENTRATIONS IN STORM DRAIN SEDIMENTS AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Sample Name									
Sample Location Code			Sample Date			Sample Interval (ft bgs)			
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\* Note: OP Pesticide, Herbicide and Semivolatile data from STA-1, STA-2, DM-1 & DM-2 were collected during the Phase II GQA, May 1993.

**TABLE 3-2**  
**COMPARISON OF CONCENTRATIONS IN STORM DRAIN SEDIMENTS AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Parameter	CAS#	Fraction	Units	Max Hit	Sample Name									
					RCRA Listed Waste Code	RCRA Characteristic Waste Codes (Assumed by the "Rule of 20")	UTS (mg/kg)	10xUTS (mg/kg)	Pine South	Lowerline	Lowerline	Lowerline	Lowerline	
4,4'-DDD	72-54-8	OCL Pesticides	mg/Kg	410	-	-	0.087	0.87	8.5	13	0.31	56	1.5	
4,4'-DDE	72-55-9	OCL Pesticides	mg/Kg	14	-	-	0.087	0.87	6.7	1.4	0.14	11.1	1.3	
DELDRIIN	60-57-1	OCL Pesticides	mg/Kg	23	-	-	0.13	1.3	3.5	0.69	0.4	23	1.1	
GAMMA CHLORDANE	5103-74-2	OCL Pesticides	mg/Kg	1400	-	-	0.26	2.6	18	6.1	0.39	150	3.3	
4,4'-DDT	50-29-3	OCL Pesticides	mg/Kg	270	-	-	0.087	0.87	15	5.2	0.12	20	<92	
ALPHA CHLORDANE	5103-71-9	OCL Pesticides	mg/Kg	430	-	-	0.26	2.6	5.2	1.2	0.12	39	0.92	
ENDRIN	72-20-8	OCL Pesticides	mg/Kg	14	DD12	DD12	0.13	1.3	1.8	0.99	0.37	14	77.1	
2-BUTANONE	78-93-3	Volatiles	mg/Kg	2.5	DD35	DD35	36	360	1.61B	<100	<13	1.81B	1.71B	
ALDRIN	309-00-2	OCL Pesticides	mg/Kg	28	-	-	0.066	0.66	5.61	1.9	0.037	28	54.1	
ACEITONE	67-64-1	Volatiles	mg/Kg	2.5	-	-	160	1600	1.61	<100	1.31	1.81	1.71B	
DELTA BHC	319-86-8	OCL Pesticides	mg/Kg	2	-	-	0.066	0.66	59.1	2	0.13	<12	45.1	
ENDOSULFAN II	33213-65-9	OCL Pesticides	mg/Kg	0.675	-	-	0.13	1.3	45.1	<0.05	0.121	<12	<92	
HEPTACHLOR	76-44-8	OCL Pesticides	mg/Kg	160	DD31	DD31	0.066	0.66	<1.1	0.18	0.082	160	1.5	
CHLORDANE	57-74-9	OCL Pesticides	mg/Kg	500	DD20	DD20	0.26	2.6	<11	<0.10	0.27	500	53.1	
DINOSER (DNBP)	88-85-7	Herbicides	mg/Kg	0.16	-	-	-	-	<1.1	0.45	0.025	28	47.1	
ALPHA BHC	319-84-6	OCL Pesticides	mg/Kg	22	-	-	0.066	0.66	<1.1	0.44	<0.22	<12	<92	
BETA BHC	117-81-7	Semivolatiles	mg/Kg	7.5	-	-	-	-	<39	7.5	23.1	<3.0	2.1	
BIS(2-ETHYLHEXYL)-PHTHALAT	127-18-4	Volatiles	mg/Kg	0.019	DD39	DD39	6	60	<39	<0.6	<32	11.1	14	
TETRACHLOROETHENE	540-59-0	Volatiles	mg/Kg	1.4	-	-	-	-	<39	<0.05	<32	0.47	1.4	
1,2-DICHLOROETHENE (TOTAL)	959-98-8	OCL Pesticides	mg/Kg	12	-	-	0.066	0.66	<1.1	<0.05	<0.22	12	<92	
ENDOSULFAN I	58-89-9	OCL Pesticides	mg/Kg	54	DD13	DD13	0.066	0.66	<1.1	0.19	<0.22	54	<92	
GAMMA BHC (LINDANE)	1024-57-3	OCL Pesticides	mg/Kg	0.3	DD31	DD31	0.066	0.66	<1.1	<0.05	<0.22	<12	<92	
HEPTACHLOR EPOXIDE	1031-07-8	OCL Pesticides	mg/Kg	95	-	-	0.13	1.3	<1.1	<0.05	<0.22	<12	<92	
ENDOSULFAN SULFATE	7421-93-4	OCL Pesticides	mg/Kg	27	-	-	0.13	1.3	<1.1	<0.05	<0.22	<12	<92	
ENDRIN ALDHYDE	53494-70-5	OCL Pesticides	mg/Kg	3.0	-	-	-	-	<42	<0.1	0.099	<12	<92	
ENDRIN KETONE	8001-35-2	OCL Pesticides	mg/Kg	400	DD15	DD15	2.6	26	<42	<0.1	<36	<480	<36	
TOXAPHENE	108-90-7	OCL Pesticides	mg/Kg	3400	DD21	DD21	6	60	<39	<0.6	<32	0.83	<43	
CHLOROBENZENE	75-01-4	Volatiles	mg/Kg	0.0375	DD43	DD43	6	60	<78	0.81	<64	<9	<86	
VINYL CHLORIDE	75-01-4	Volatiles	mg/Kg	0.0375	-	-	30	300	<39	<0.6	<32	<45	<43	
XYLENES	1330-20-7	Volatiles	mg/Kg	0.01775	-	-	-	-	<39	<0.6	<32	<45	<43	

\* Note: OP Pesticide, Herbicide and Semivolatile data from STA-1, STA-2, DM-1 & DM-2 were collected during the Phase II GQA, May 1993.

**TABLE 3-3**  
**COMPARISON OF CONCENTRATIONS IN SOIL AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Constituent	CAS #	Max. Detected Conc. (mg/kg)	Arithmetic Avg. Conc. (mg/kg)	Volume- Weighted Avg. Conc. (mg/kg)	RCRA Listed Waste Code	RCRA Characteristic Waste Code (Assumed by the "Rule of 20")	UTS (mg/kg)	10xUTS (mg/kg)
Arsenic *	7440-38-2	26	-	-	-	-		
Beryllium *	7440-41-7	1.4	-	-	-	-		
Chromium *	7440-47-3	24.0	-	-	-	-		
4,4'-DDT *	50-29-3	126.0	5.7	4.4	-	-	0.087	0.87
Aldrin *	309-00-2	83.8	6.3	6.3	-	-	0.066	0.66
Dieldrin *	60-57-1	24.3	3.3	3.1	-	-	0.13	1.3
alpha BHC *	319-84-6	22.2	3.7	3.9	-	-	0.066	0.66
4,4-DDD *	72-54-8	95.7	7.8	8.0	-	-	0.087	0.87
Chlordane *	57-74-9	79.0	5.1	6.3	-	D020	0.26	2.6
4,4-DDE *	72-55-9	10.1	2.3	2.0	-	-	0.087	0.87
Lindane *	58-89-9	49.8	5.1	5.4	-	-	0.066	0.66
Endrin *	72-20-8	138.3	5.8	5.9	-	D012	0.13	1.3
Heptachlor *	76-44-8	51.7	4.4	4.0	-	D031	0.066	0.66
Heptachlor Epoxide *	1024-57-3	2.5		1.1	-	D031	0.066	0.66
Toxaphene *	8001-35-2	146.0	9.8	7.3	-	-	2.6	26
PCE *	127-18-4	18,000.0	3,004.0	2,233.0	U210	D039	6	60
beta BHC	319-85-7	12.9	2.4	2.4	-	-	0.066	0.66
delta BHC	319-86-8	28.3	3.7	3.8	-	-	0.066	0.66
Endosulfan I	959-98-8	2.5	1.4	1.1	-	-	0.066	0.66
1,2-DCB	95-50-1	9.6	2.5	3.5	-	-	6	60
1,3-DCB	541-73-1	1.3	1.7	2.7	-	-	6	60
1,4-DCB	106-46-7	14.6	3.0	4.3	-	-	6	60
2,4,5-TP	93-72-1	6.2	0.5	0.2	-	-	7.9	79
2,4,5-T	93-76-5	2.1	0.1	0.0	-	-	7.9	79
2,4-D	94-75-7	40.0	2.0	0.7	U240	-	10	100
2,4-DB	94-82-6	0.2	0.2	0.1	-	-	-	-
DICAMBA	1918-00-9	0.5	0.1	0.0	-	-	-	-
Dinoseb	88-85-7	1.7	0.7	0.3	-	-	-	-
Pentachlorophenol	87-86-5	64.7	6.7	7.0	-	-	7.4	74
Anthracene	120-12-7	1.1	0.3	0.3	-	-	3.4	34
Hexachlorobutadiene	87-68-3	0.7	0.3	0.3	-	-	5.6	56
Naphthalene	91-20-3	60.7	6.0	5.7	-	-	5.6	56
n-Nitrosodiphenylamine	86-30-6	1.7	0.3	0.3	-	-	-	NA
Phenanthrene	85-01-8	0.8	0.4	0.4	-	-	5.6	56
1,2,4-TCB	120-82-1	20.3	2.9	2.8	-	-	19	190
2,4-Dichloro-phenol	120-83-2	25.0	1.1	3.1	-	-	14	140
2,4-Dimethyl-phenol	105-67-9	1.3	0.3	0.3	-	-	14	140
2-Methyl-naphthalene	91-57-6	114.0	12.4	10.5	-	-	-	-
Acenaphthene	83-32-9	1.1	0.3	0.3	-	-	3.4	34

**TABLE 3-3**  
**COMPARISON OF CONCENTRATIONS IN SOIL AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Constituent	CAS #	Max. Detected Conc. (mg/kg)	Arithmetic Avg. Conc. (mg/kg)	Volume-Weighted Avg. Conc. (mg/kg)	RCRA Listed Waste Code	RCRA Characteristic Waste Code (Assumed by the "Rule of 20")	UTS (mg/kg)	10xUTS (mg/kg)
2,4'-DDD	53-19-0	6.2	1.0	1.1	-	-	0.087	0.87
2,4'-DDT	789-02-6	0.2	0.1	0.1	-	-	0.087	0.87
Captan	133-06-2	0.2	0.1	0.1	-	-	-	-
Endosulfan Sulfate	1031-07-8	0.3	0.1	0.2	-	-	0.13	1.3
Methoxychlor	72-43-5	0.0	0.2	0.2	-	-	0.18	1.8
PCNB	82-68-8	0.7	0.1	0.1	-	-	4.8	48
TCE	79-01-6	93.1	18.2	56.1	-	D040	6	60
Xylenes	1330-20-7	4,300.0	810.0	552.9	-	-	30	300
DEF	78-48-8	0.2	0.0	0.0	-	-	-	-
Malathion	121-75-5	0.0	0.0	0.0	-	-	-	-
Ethyl Benzene	100-41-4	710.0	70.7	101.6	-	-	10	100
Dioxins:					-	-	0	
1,2,3,4,6,7,8-HpCDD	35822-46-9	0.090	0.045	0.0578	-	-	No Code	No Code
1,2,3,4,6,7,8-HpCDF	67562-39-4	0.012	0.006	0.0078	-	-	No Code	No Code
1,2,3,4,7,8,9-HpCDF	55673-89-7	0.001	0.001	0.0007	-	-	No Code	No Code
1,2,3,4,7,8-HxCDF	70648-26-9	0.002	0.001	0.0014	-	-	0.001	0.01
1,2,3,6,7,8-HxCDD	57653-85-7	0.002	0.001	0.0012	-	-	0.001	0.01
2,3,7,8-TCDF	51207-31-9	0.000	0.000	0.0003	-	-	0.001	0.01
2,3,7,8-TCDD	1746-01-6	0.001			-	0.00		
OCDD	3268-87-9	1.200	0.602	0.7713	-	-	No Code	No Code
OCDF	39001-02-0	0.070	0.035	0.0450	-	-	No Code	No Code
Total HpCDD	37871-00-4	0.140	0.070	0.0900	-	-	No Code	No Code
Total HpCDF	38998-75-3	0.067	0.034	0.0431	-	-	No Code	No Code
Total HxCDD	34465-46-8	0.004	0.002	0.0027	-	-	0.001	0.01
Total HxCDF	55684-94-1	0.018	0.002	0.0120	-	-	0.001	0.01
Total PeCDF	30402-15-4	0.002	0.001	0.0012	-	-	0.001	0.01
Total TCDD	41903-57-5	0.001	0.000	0.0004	-	-	0.001	0.01
Total TCDF	55722-27-5	0.001	0.001	0.0008	-	-	0.001	0.01

Notes: Indicates Soil COPC.

**TABLE 3-4**  
**COMPARISON OF CONCENTRATIONS IN LIQUIDS AND UNIVERSAL TREATMENT STANDARDS**  
**REMEDIAL DESIGN**  
**7700 Earhart Boulevard Facility**  
**New Orleans, Louisiana**  
**Agency Interest Number 1275**

Parameter	CAS NUMBER	FRACTION	RCRA Listed Waste Code	RCRA Characteristic Waste Code (Assumed by the "Rule of 20")	Sample Identification			Roof Drain 1	SC-1	Tank-1	Tank-2
					Sample Name	Sample Date	Sample Media Location				
						10-UTS (mg/l)		mg/l	mg/l	mg/l	mg/l
Chlordane	57-74-9	OCL Pesticide		D020	0.0033	0.033	2523	0.6	0.05	0.095	0.38
Ethylbenzene	100-41-4	Volatiles		-	0.057	0.57	5376.5	3.94	0.0093	14.9	12.24
Xylenes	1330-20-7	Volatiles		-	0.32	3.2	188430	16.5	0.11	108	<2.5
Tetrachloroethene	127-18-4	Volatiles	U210	D039	0.056	0.56	226420	106.1	0.042	0.126	<2.5
2-Methyl Naphthalene	91-57-6	Semivolatiles		-	-	-	3070		<0.05	0.11	0.31
Naphthalene	91-20-3	Semivolatiles		-	0.059	0.59	1982		<0.05	0.07	0.24
Trichloroethene	79-01-6	Volatiles		D040	0.054	0.54	66714	13.82	0.051	<0.1	387.6
Heptachlor	76-44-8	OCL Pesticide		D031	0.0012	0.012	12800	0.96	0.22	<0.001	<0.001
4,4'-DDD	72-54-8	OCL Pesticide		-	0.023	0.23	1480	0.38	0.19	<0.001	<0.001
Beta BHC	319-85-7	OCL Pesticide		-	0.00014	0.0014	<80	0.091	0.014	0.0073	<0.001
Pentachlorophenol	87-86-5	Semivolatiles		D037	0.089	0.89	<80		0.045	0.6	4.8
Fluorene	86-73-7	Semivolatiles		-	0.059	0.59	408		<0.05	0.012	0.055
2,4,5-TP	93-72-1	Herbicide		D017	0.72	7.2		0.47			
4,4'-DDE	72-55-9	OCL Pesticide		-	0.031	0.31	31900	0.054	<0.001	<0.001	<0.001
Gamma BHC (Lindane)	58-89-9	OCL Pesticide		D013	0.0017	0.017	<80	0.032	0.1	0.35	<0.001
Aldrin	309-00-2	OCL Pesticide		-	0.021	0.21	<550	<0.005	0.042	<0.001	0.19
Phenanthrene	85-01-8	Semivolatiles		-	0.059	0.59	<80		<0.05	0.056	0.066
1,1-Dichloroethane	75-34-3	Volatiles		-	0.059	0.59	13269	<1.5	0.033	<0.1	<2.5
1,1,1-Trichloroethane	71-55-6	Volatiles		-	0.054	0.54	269730	<1.5	0.035	<0.1	<2.5
Alpha BHC	319-84-6	OCL Pesticide		-	0.00014	0.0014	<500	0.014	0.33	<0.001	<0.001
Toluene	108-88-3	Volatiles		-	0.08	0.8	21570	<1.5	<0.005	0.41	<2.5
N-Nitrosodiphenylamine	86-30-6	Semivolatiles		-	0.92	9.2	525		<0.05	<0.005	<0.005
Acenaphthylene	208-96-8	Semivolatiles		-	0.059	0.59	<80		<0.05	0.015	<0.005
Dimethyl Phthalate	131-11-3	Semivolatiles		-	0.047	0.47	<80		<0.05	<0.005	0.018
1,2,4-Trichlorobenzene	120-82-1	Semivolatiles		-	0.055	0.55	333		<0.05	<0.005	<0.005
4-Nitrophenol	100-02-7	Semivolatiles		-	0.12	1.2	420	<0.005	<0.010	<0.010	<0.010
Endosulfan I	959-98-8	OCL Pesticide		-	0.023	0.23	6540		<0.001	<0.001	<0.001
1,1-Dichloroethene	75-35-4	Volatiles		D029	0.025	0.25	3885.4	<1.5	<0.005	<0.1	<2.5
Methylene Chloride	75-09-2	Volatiles		-	0.089	0.89	<25	<1.5	0.027	<0.1	<2.5
Endrin	72-20-8	OCL Pesticide		D012	0.0028	0.028	<80	<0.005	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	541-73-1	Semivolatiles		-	0.036	0.36	<25	<1.5	<0.005	<0.005	<0.005
Endosulfan II	33213-65-9	OCL Pesticide		-	0.029	0.29	1940	<0.005	<0.001	<0.001	<0.001
Delta BHC	319-86-8	OCL Pesticide		-	0.023	0.23	<80	<0.005	0.0037	<0.001	<0.001
1,4-Dichlorobenzene	106-46-7	Semivolatiles		D027	0.09	0.9	<25	<1.5	0.005	<0.005	<0.005

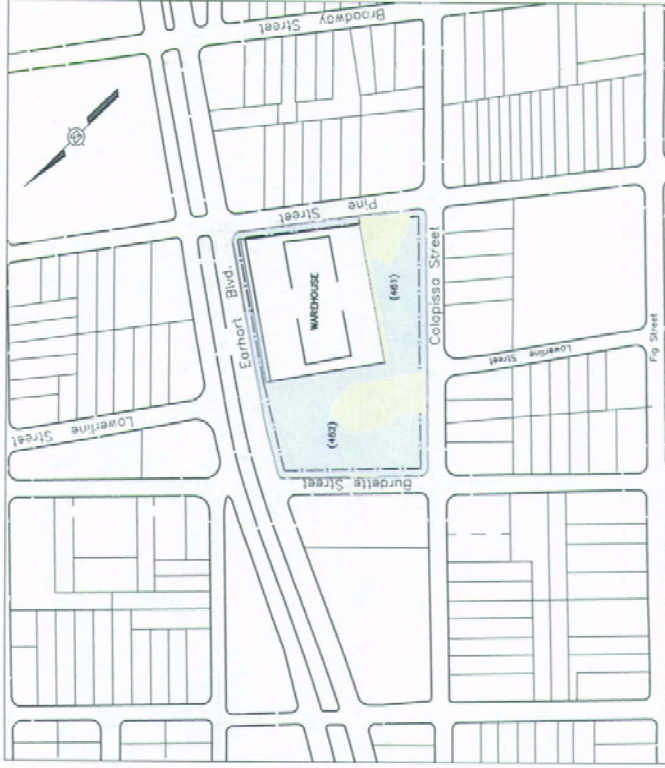
- No RCRA Characteristic Waste Code available

## FIGURES

IMAGE	X-REF	OFFICE	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	BTR	J.BOUCHER	05/24/05	KL5	2/016	118267-B02
						KL5	2/016
						KL5	2/016



VICINITY MAP



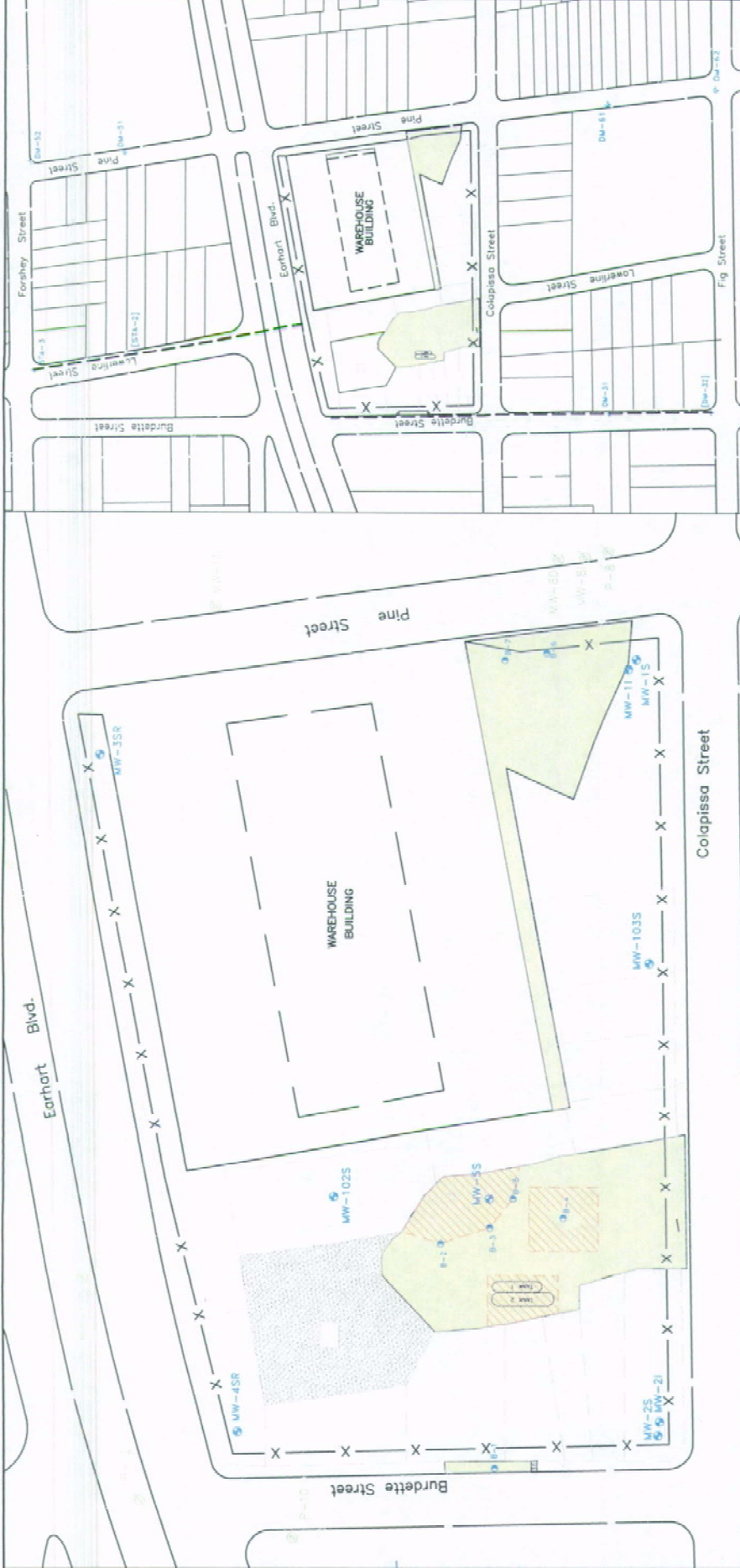
LAYOUT MAP



7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275

FIGURE 2-1  
SITE LOCATION MAP

IMAGE	X-REF	OFFICE	BTR	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
				P. GUDRY	2/17/05	KP/2/2/05	118267-B03



**LEGEND:**

- MEDIA SUBJECT TO REMEDIAL ACTION (0-4.5FT. BGS)
- STORM DRAIN LINES SUBJECT TO REMEDIAL ACTION
- ESTIMATED SUBSURFACE SOIL TO BE EXCAVATED (4.5-10FT. BGS)
- PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 1 FT. BGS"
- PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 4.5 FT. BGS"
- STORMDRAIN SEDIMENT SAMPLE LOCATION
- EXISTING MONITORING WELL
- PLUGGED AND ABANDONED MONITORING WELL

**INSET "A"**

- SECURITY FENCE/PROPERTY BOUNDARY
- SUBSURFACE DRAINAGE LINE
- SUBSURFACE SEWER LINE
- SUBSURFACE WATER LINE
- SUBSURFACE GAS LINE
- SUBSURFACE ELECTRIC LINE

**PLAN VIEW**

SCALE: 0 150 300 FEET

**FIGURE 2-2**

**EXISTING SITE CONDITIONS AND MEDIA REQUIRING REMEDIATION**

7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275

**Shaw**

118267-B04

DRAWING NUMBER

APPROVED BY KPL 2/06

CHECKED BY KLS 2/06

DRAWN BY J. BOURGEOIS 05/24/05

OFFICE BTR

OFFICE

X-REF

IMAGE

LEGEND:

- X — SECURITY FENCE/PROPERTY BOUNDARY
- SUBSURFACE DRAINAGE LINE
- SUBSURFACE SEWER LINE
- SUBSURFACE WATER LINE
- SUBSURFACE GAS LINE
- SUBSURFACE ELECTRIC LINE

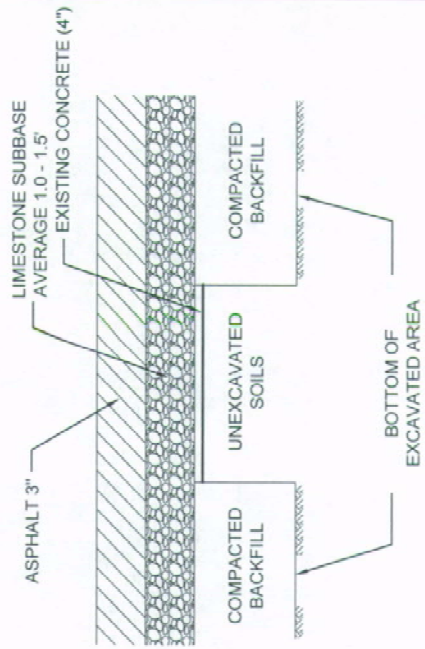
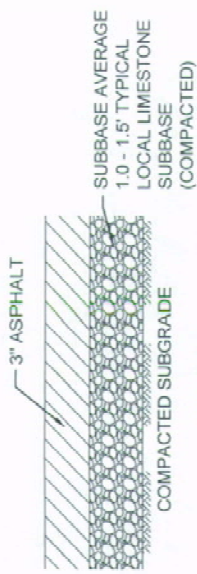
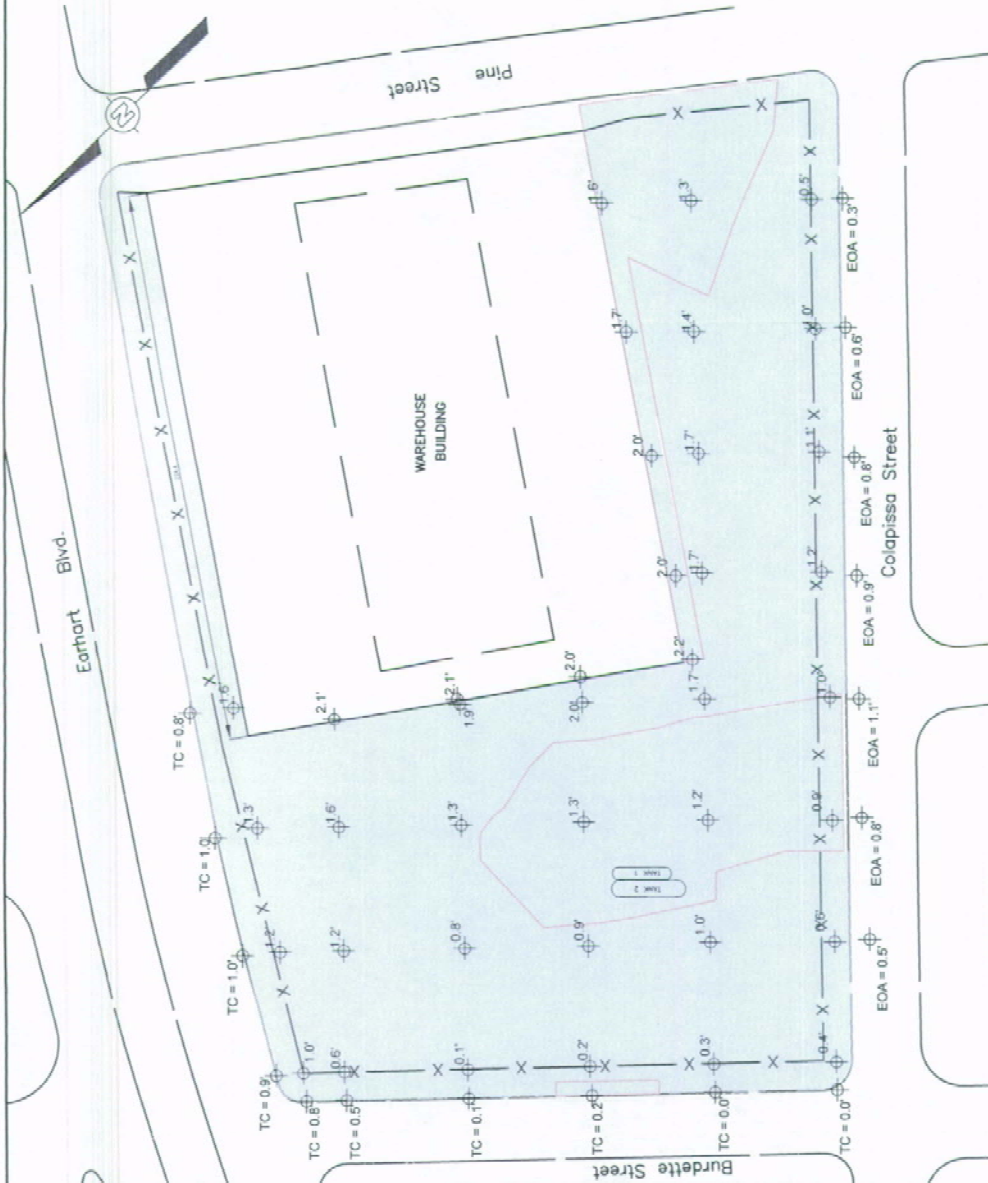
- MEDIA SUBJECT TO REMEDIAL ACTION
- ASPHALT AREAS
- TC TOP OF CURB
- EOA EDGE OF ASPHALT

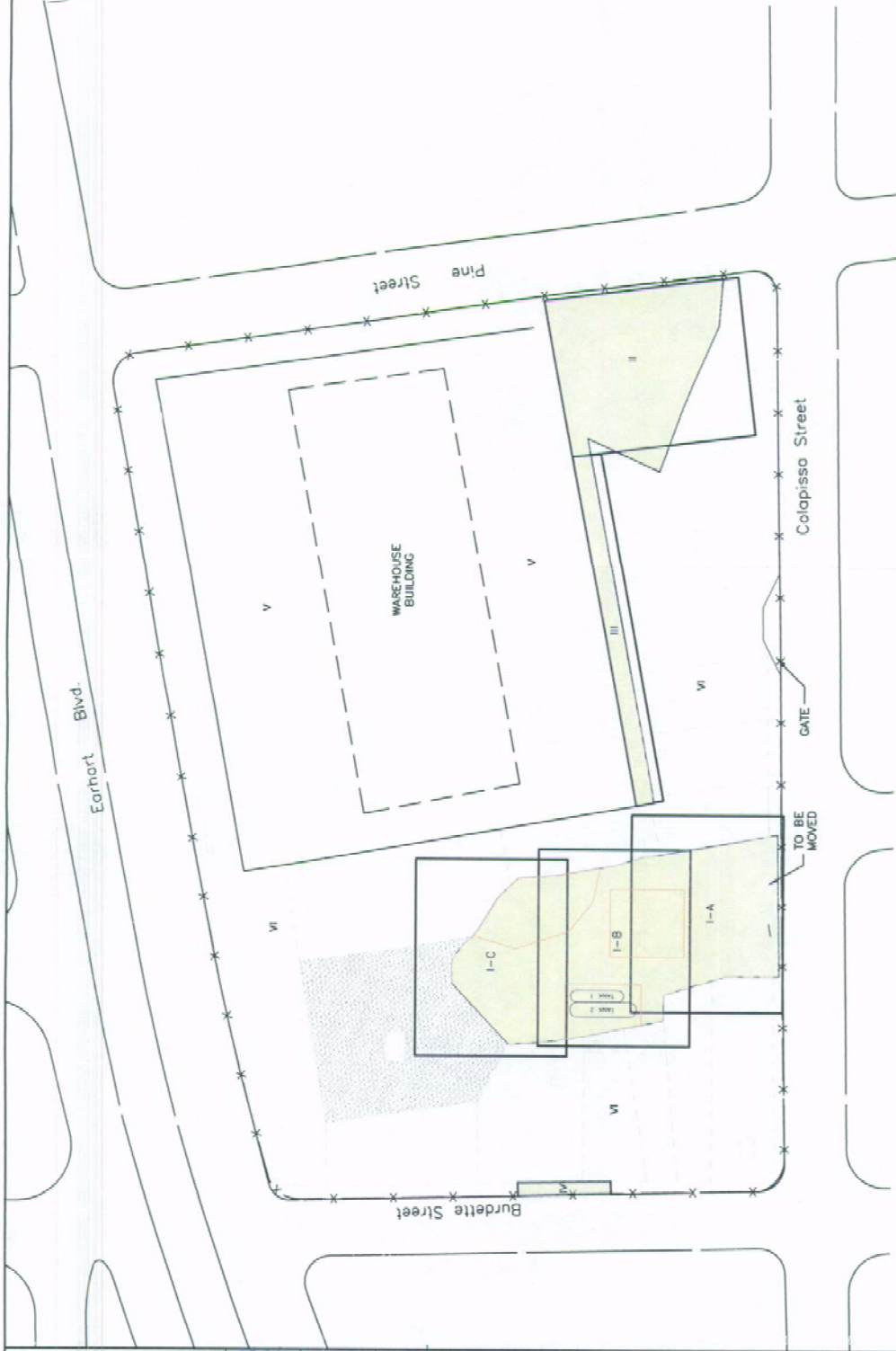


FIGURE 2-3

EXISTING ASPHALT COVER LAYOUT

7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275





7700 EARTHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275



**FIGURE 5-1**  
**REMEDIAL ACTIVITIES WORK ZONE**



**LEGEND:**

- MEDIA SUBJECT TO REMEDIAL ACTION (3'-4.5 FEET BGS)
- ESTIMATED SUBSURFACE SOIL TO BE EXCAVATED (4.5'-10 FEET BGS)
- PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 1 FT. BGS"
- PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 4.5 FT. BGS"
- WORK AREAS
- SECURITY FENCE/STREET CURB
- X GATE
- TO BE MOVED

IMAGE	---
X-REF	---
OFFICE	BTR
DRAWN BY	J.ABOUHEKUK 01/10/06
CHECKED BY	KLS 2/06
APPROVED BY	KFL 2/06
DRAWING NUMBER	118267-B05

IMAGE	X-REF	OFFICE	BTR	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	---	---	J. Bouchard 01/10/06	K-L-S 2/04	KPL 3/06	118267-B06



7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275



FIGURE 6-1  
REMEDIAL ACTIVITIES LAYOUT PLAN

- LEGEND:
- MEWM SUBJECT TO REMEDIAL ACTION (0-4.5 FEET BGS)
  - ESTIMATED SURFACE SOIL TO BE EXCAVATED (4.5-10 FEET BGS)
  - PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 1 FT. BGS"
  - PREVIOUSLY EXCAVATED AND BACKFILLED AREA "NOMINAL 4.5 FT. BGS"
  - WORK AREAS
  - X --- SECURITY FENCE/STREET CORN
  - TO BE MOVED

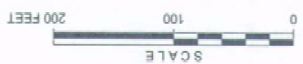




IMAGE	---	OFFICE	BTR	DRAWN BY	J. BOURDEAUX 04/18/05	CHECKED BY	WLS 2/06	APPROVED BY	KPK 2/06	DRAWING NUMBER	118267-B07
-------	-----	--------	-----	----------	-----------------------	------------	----------	-------------	----------	----------------	------------

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	BTR	J. BOUTEREAU	05/24/05	KLS	2106
					KTC	2106
						118267-B09

- LEGEND**
- x— SECURITY FENCE/PROPERTY BOUNDARY
  - SUBSURFACE DRAINAGE LINE
  - SUBSURFACE SEWER LINE
  - SUBSURFACE WATER LINE
  - SUBSURFACE GAS LINE
  - SUBSURFACE ELECTRIC LINE
  - DIRECTION OF FLOW
  - CATCH BASIN
  - MEDIA SUBJECT TO REMEDIAL ACTION
  - STORM DRAIN SAMPLE LOCATION
  - STORM DRAIN SYSTEM SUBJECT TO REMEDIAL ACTION



**STORM DRAIN REMEDIAL ACTIONS**

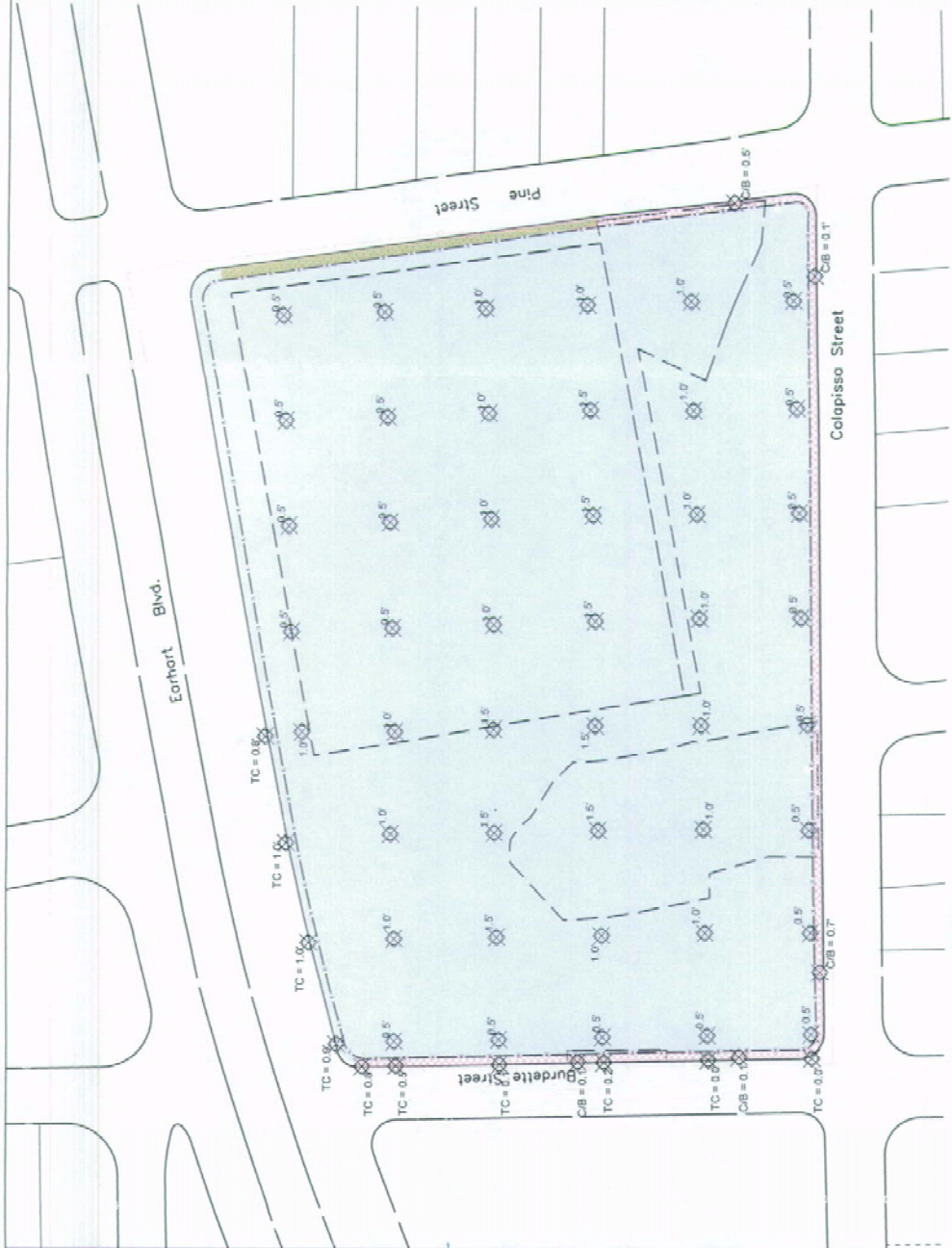
**FIGURE 6-3**

7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275





IMAGE	X-REF	OFFICE	BTR	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
				J. Boudreau	05/24/05	05/24/05	118267-B01



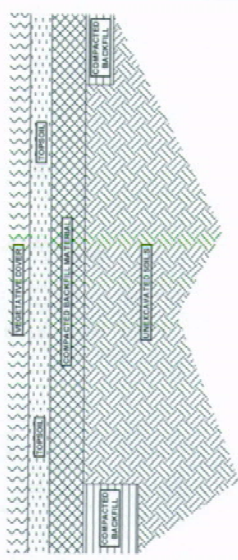
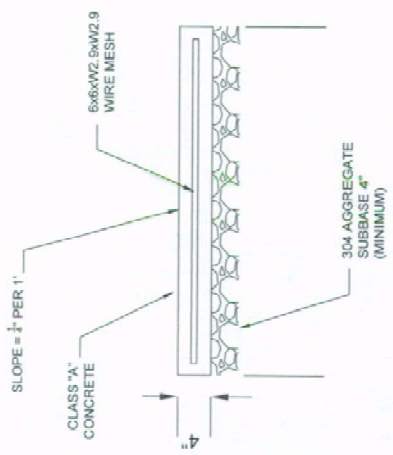
- LEGEND:
- X --- FINAL SECURITY FENCE LOCATION
  - SUBSURFACE DRAINAGE LINE
  - SUBSURFACE SEWER LINE
  - SUBSURFACE WATER LINE
  - SUBSURFACE GAS LINE
  - SUBSURFACE ELECTRIC LINE

- EXISTING SIDEWALK
- SIDEWALK TO BE ADDED
- REMEDIED AREAS
- TC TOP OF CURB
- CB CATCH BASIN TOP



TYPICAL COVER DETAIL

TYPICAL SIDEWALK DETAIL



7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA  
AGENCY INTEREST NO. 1275

FIGURE 6-5  
FINAL SITE RESTORATION PLAN

**APPENDIX A**

**ANALYTICAL DATA SUMMARIES**

**Table A-1**  
**On-Site Underground Facility Structure Analytical Data**  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS NUMBER	Sample Identification Sample Name Media Location	RCRA Waste Code	HA-13 Sump 4 17-Mar-88 SUMP-4 Concrete Onsite mg/kg	CRD-H/E-1 7-Sep-89 CRD-H/E-1 Concrete Onsite mg/kg	Sump-6 Fluid 11-Apr-88 Sump 6 Liquid Onsite mg/l	Roof Drain 1 17-Mar-88 RD-1 Water Onsite mg/l	SC-1 30-Mar-88 SC-1 Water Onsite mg/l	Tank-1 30-Mar-88 Tank 1 Liquid Onsite mg/l	Tank-2 30-Mar-88 Tank 2 Liquid Onsite mg/l
Chlordane	57-74-9	OCL Pesticide	U036	130		2523	0.6	0.05	0.095	0.38
Ethylbenzene	100-41-4	Volatiles	*	21		5376.5	3.94	0.0093	14.9	12.24
Xylenes	1330-20-7	Volatiles	U129	700		188430	16.5	0.11	108	<2.5
Tetrachloroethene	127-18-4	Volatiles	U210	130		228420	108.1	0.042	0.126	<2.5
2-Methyl Naphthalene	91-57-6	Semivolatiles	*	180		3070		<0.05	0.11	0.31
Naphthalene	91-20-3	Semivolatiles	U165	104		1982		<0.05	0.07	0.24
Trichloroethene	79-01-6	Volatiles	U228	<20		68714	13.82	0.051	<0.1	387.6
Heptachlor	76-44-8	OCL Pesticide	P059	41		12800	0.96	0.22	<0.001	<0.001
4,4'-DDD	72-54-8	OCL Pesticide	U060	27		1490	0.38	0.19	<0.001	<0.001
Beta BHC	319-85-7	OCL Pesticide	*	49		<60	0.091	0.014	0.0073	<0.001
Pentachlorophenol	87-86-5	Semivolatiles	See F027	<3.3		<60		0.045	0.6	4.8
Fluorene	86-73-7	Semivolatiles	*	6	<0.1	408		<0.05	0.012	0.055
2,4,5-TP	93-72-1	Herbicide	See F027				0.47			
4,4'-DDE	72-55-9	OCL Pesticide	*	350		31900	0.054	<0.001	<0.001	<0.001
Gamma BHC (Lindane)	58-89-9	OCL Pesticide	U129	<5		<60	0.032	0.1	0.35	<0.001
Aldrin	309-40-2	OCL Pesticide	P004	600		<550	<0.005	0.042	<0.001	0.19
Phenanthrene	85-01-8	Semivolatiles	*	<0.6		<60		<0.05	0.056	0.066
1,1-Dichloroethane	75-34-3	Volatiles	U076	<20		13269	<1.5	0.033	<0.1	<2.5
1,1,1-Trichloroethane	71-55-6	Volatiles	U226	<20		269730	<1.5	0.035	<0.1	<2.5
Alpha BHC	319-84-6	OCL Pesticide	*	<5		<500	0.014	0.33	<0.001	<0.001
Toluene	108-88-3	Volatiles	U220	<20		21570	<1.5	<0.005	0.41	<2.5
N-Nitrosodiphenylamine	86-30-6	Semivolatiles	*	<0.6		525		<0.005	<0.005	<0.005
Acenaphthylene	208-96-8	Semivolatiles	*	<0.6		<60		<0.005	0.015	<0.005
Dimethyl Phthalate	131-11-3	Semivolatiles	U102	<0.6		<60		<0.005	<0.005	0.018
1,2,4-Trichlorobenzene	120-82-1	Semivolatiles	*	<0.6		333		<0.005	<0.005	<0.005
4-Nitrophenol	100-02-7	Semivolatiles	U170	<3.3		420		<0.010	<0.010	<0.010
Endosulfan I	959-98-8	OCL Pesticide	P050	<5		6540	<0.005	<0.001	<0.001	<0.001
1,1-Dichloroethene	75-35-4	Volatiles	U078	<20		3885.4	<1.5	<0.005	<0.1	<2.5
Methylene Chloride	75-09-2	Volatiles	U080	<20		<25	<1.5	0.027	<0.1	<2.5
Endrin	72-20-8	OCL Pesticide	P051	510		<60	<0.005	<0.001	<0.001	<0.001
1,3-Dichlorobenzene	541-73-1	Semivolatiles	U071	3		<25	<1.5	<0.005	<0.005	<0.005
Endosulfan II	33213-65-9	OCL Pesticide	P050	<5		1940	<0.005	<0.001	<0.001	<0.001
Delta BHC	319-86-8	OCL Pesticide	*	<5		<60	<0.005	0.0037	<0.001	<0.001
1,4-Dichlorobenzene	106-46-7	Semivolatiles	U072	3.3		<25	<1.5	0.005	<0.005	<0.005

\* - No RCRA listed Waste Code available

**Table A-2**  
**Surface Soil Analytical Data**  
7700 Earhart Boulevard  
New Orleans, Louisiana

[illegible]

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Table A-2  
Surface Soil Analytical Data  
1 of 9

Table A-2

Table A-2  
Series Soil Analytical Data

Table A-2

Table A-2  
Surface Soil Analytical Data  
3 of 9

Table A-2

Table A-2  
Surface Soil Analytical Data  
4 of 9

Table A-2

[illegible]

Table A-2

Table A-2  
Surface Soil Analytical Data  
6 of 9

Table A-2

Surface Soil Analytical Data  
7700 Earhart Boulevard  
New Orleans, Louisiana

PARAMETER	Fraction	UNITS	Sample Name	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Start Depth (ft)	End Depth (ft)	Depth units	SS-E-4	SS-E-5	SS-E-6	SS-E-7	SS-E-8	SS-E-9	SS-G-1	SS-G-2	SS-G-3	SS-L-1	SS-L-2	SS-L-3	TWP-3	TWP-4
										ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	ON SOIL-Coder Program	SO	SO
ACETONE	Volatiles	MG/KG	67-44-1																				
ALUMINUM	Metal	MG/KG	7429-90-5																				
BARIUM	Metal	MG/KG	7440-39-3																				
CALCIUM	Metal	MG/KG	7440-70-2																				
CHROMIUM	Metal	MG/KG	7440-47-3																				
COPPER	Metal	MG/KG	7440-50-9																				
IRON	Metal	MG/KG	7440-38-6																				
MAGNESIUM	Metal	MG/KG	7439-95-4																				
MANGANESE	Metal	MG/KG	7439-96-5																				
NICKEL	Metal	MG/KG	7440-02-0																				
POTASSIUM	Metal	MG/KG	7440-09-7																				
SELENIUM	Metal	MG/KG	7782-49-2																				
SILICON	Metal	MG/KG	7410-12-5																				
VANADIUM	Metal	MG/KG	7440-02-2																				
ARSENIC	Metal	MG/KG	7440-38-2																				
LEAD	Metal	MG/KG	7439-92-1																				
ZINC	Metal	MG/KG	7440-66-6																				
BERYLLIUM	Metal	MG/KG	7440-41-7																				
THALLIUM	Metal	MG/KG	7440-28-9																				
2,4-DICHLOROPHENOL	Volatiles	MG/KG	78-39-3																				
2-METHYLNAPHTHALENE	Semivolatiles	MG/KG	91-57-6																				
NAPHTHALENE	Semivolatiles	MG/KG	91-20-3																				
4,4'-DDD	OCL, Pesticide	MG/KG	72-54-8																				
CHLORDANE	OCL, Pesticide	MG/KG	57-74-9																				
ETHYL BENZENE	Volatiles	MG/KG	100-11-4																				
1,2-DICHLOROBENZENE (TOTAL)	Volatiles	MG/KG	95-13-4																				
XYLENES	Volatiles	MG/KG	1330-20-7																				
ALDRIN	OCL, Pesticide	MG/KG	309-00-2																				
4,4'-DDT	OCL, Pesticide	MG/KG	50-29-3																				
1,4-DICHLOROBENZENE	Semivolatiles	MG/KG	106-46-7																				
BETA BHC	OCL, Pesticide	MG/KG	319-85-7																				
DELTA BHC	OCL, Pesticide	MG/KG	319-84-8																				
ALPHA BHC	OCL, Pesticide	MG/KG	319-84-6																				
DELTA BHC	OCL, Pesticide	MG/KG	319-84-8																				
4,4'-DDE	OCL, Pesticide	MG/KG	72-55-9																				
GAMMA BHC (LINDANE)	OCL, Pesticide	MG/KG	58-89-9																				
TOXAPHENE	OCL, Pesticide	MG/KG	8001-35-2																				
2,4'-DDD	OCL, Pesticide	MG/KG	335-19-9																				
1,2-DICHLOROBENZENE	Semivolatiles	MG/KG	95-13-4																				
PENTACHLOROPHENOL	Semivolatiles	MG/KG	87-86-5																				
ENDRIN	OCL, Pesticide	MG/KG	72-20-8																				
TETRACHLOROETHENE	Volatiles	MG/KG	127-18-4																				
TRICHLOROETHENE	Volatiles	MG/KG	79-01-6																				
1,2-DICHLOROBENZENE	Semivolatiles	MG/KG	95-13-4																				
TACHLOR	Semivolatiles	MG/KG	95-13-4																				
PERMETHRIN	Semivolatiles	MG/KG	83-01-8																				
2,4,5-TP	Herbicide	MG/KG	93-72-1																				
DEF	OP, Pesticide	MG/KG	78-48-8																				
BENZENE	Volatiles	MG/KG	71-43-2																				
CHLOROBENZENE	Volatiles	MG/KG	108-90-7																				
METHYLENE CHLORIDE	Volatiles	MG/KG	72-49-2																				
4,4'-DDT	OCL, Pesticide	MG/KG	50-29-3																				
2,4-DICHLOROPHENOL	Semivolatiles	MG/KG	78-02-6																				
ACENAPHTHENE	Semivolatiles	MG/KG	83-32-9																				
1,3-DICHLOROBENZENE	Semivolatiles	MG/KG	541-77-1																				
TOLUENE	Volatiles	MG/KG	108-88-3																				
ENDOSULFAN SULFATE	OCL, Pesticide	MG/KG	101-147-8																				
PERMETHRIN	OCL, Pesticide	MG/KG	83-01-8																				
2,4-DB	Herbicide	MG/KG	94-82-6																				
2,4-D	Herbicide	MG/KG	94-75-7																				
DICAMBA	Herbicide	MG/KG	1918-06-9																				
HEPTACHLOR EPOXIDE	OCL, Pesticide	MG/KG	1024-57-3																				
MALATHION	OP, Pesticide	MG/KG	121-75-5																				



Table A-2

Table A-2  
Surface Soil Analytical Data  
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Table A-3

Table A-3  
Sub-Surface Soil Analytical Data  
1 of 3

Table A-3

Table A-3  
Sub-Surface Soil Analytical Data  
2 of 3

Table A-3

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Table A-4  
Non Impacted Soil Analytical Data  
7700 Earhart Boulevard  
New Orleans, Louisiana

PARAMETER	Fraction	Location Description	Sample Name	Sample Location Code	Sample Date	Sample Interval (ft bps)	Start Depth (ft)	End Depth (ft)	Depth units	Items Group Name	Code	Units	EA-B1	EA-B2	EA-C1	EA-C2	EA-D2	EA-D3	EA-E2	EA-E3	EA-F4	EA-F5	EA-G1	EA-G2
ACETONE	Volatiles	67-441	MOCKO							ON SOIL - Under Program														
ALUMINUM	Metal	7429-90-5	MOCKO																					
BARIUM	Metal	7440-39-3	MOCKO																					
CALCIUM	Metal	7440-70-2	MOCKO																					
CHROMIUM	Metal	7440-47-3	MOCKO																					
COPPER	Metal	7440-50-8	MOCKO																					
IRON	Metal	7439-89-6	MOCKO																					
MAGNESIUM	Metal	7439-95-4	MOCKO																					
MANGANESE	Metal	7439-96-5	MOCKO																					
POTASSIUM	Metal	7440-02-0	MOCKO																					
SILICON	Metal	7440-09-7	MOCKO																					
SODIUM	Metal	7440-23-5	MOCKO																					
VANADIUM	Metal	7440-60-2	MOCKO																					
ZINC	Metal	7440-38-2	MOCKO																					
BERYLLIUM	Metal	7440-66-6	MOCKO																					
2-BUTANONE	Volatiles	78-93-3	MOCKO																					
2-METHYLNAPHTHALENE	Semivolatile	91-57-6	MOCKO																					
4-4-DDD	OCL Pesticide	91-20-3	MOCKO																					
CHLORDANE	OCL Pesticide	72-54-3	MOCKO																					
1,1-DICHLOROBENZENE	Volatiles	57-74-9	MOCKO																					
1,2-DICHLOROBENZENE	Volatiles	95-50-1	MOCKO																					
1,3-DICHLOROBENZENE	Volatiles	540-89-0	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	1336-20-7	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	309-00-2	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	50-29-3	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	106-46-7	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-83-7	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
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1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-84-6	MOCKO																					
1,4-DICHLOROBENZENE	Volatiles	319-8																						

**Table A-4**  
**Non Impacted Soil Analytical Data**  
7700 Earhart Boulevard  
New Orleans, Louisiana

PARAMETER	Fraction	Sample Name		E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-10	E-11	E-12	E-13	E-14	E-15	E-16	E-17	E-18	E-19	E-20	E-21	E-22	E-23	E-24	E-25	E-26	E-27	E-28	E-29	E-30	E-31	E-32	E-33	E-34	E-35	E-36	E-37	E-38	E-39	E-40	E-41	E-42	E-43	E-44	E-45	E-46	E-47	E-48	E-49	E-50	E-51	E-52	E-53	E-54	E-55	E-56	E-57	E-58	E-59	E-60	E-61	E-62	E-63	E-64	E-65	E-66	E-67	E-68	E-69	E-70	E-71	E-72	E-73	E-74	E-75	E-76	E-77	E-78	E-79	E-80	E-81	E-82	E-83	E-84	E-85	E-86	E-87	E-88	E-89	E-90	E-91	E-92	E-93	E-94	E-95	E-96	E-97	E-98	E-99	E-100	E-101	E-102	E-103	E-104	E-105	E-106	E-107	E-108	E-109	E-110	E-111	E-112	E-113	E-114	E-115	E-116	E-117	E-118	E-119	E-120	E-121	E-122	E-123	E-124	E-125	E-126	E-127	E-128	E-129	E-130	E-131	E-132	E-133	E-134	E-135	E-136	E-137	E-138	E-139	E-140	E-141	E-142	E-143	E-144	E-145	E-146	E-147	E-148	E-149	E-150	E-151	E-152	E-153	E-154	E-155	E-156	E-157	E-158	E-159	E-160	E-161	E-162	E-163	E-164	E-165	E-166	E-167	E-168	E-169	E-170	E-171	E-172	E-173	E-174	E-175	E-176	E-177	E-178	E-179	E-180	E-181	E-182	E-183	E-184	E-185	E-186	E-187	E-188	E-189	E-190	E-191	E-192	E-193	E-194	E-195	E-196	E-197	E-198	E-199	E-200	E-201	E-202	E-203	E-204	E-205	E-206	E-207	E-208	E-209	E-210	E-211	E-212	E-213	E-214	E-215	E-216	E-217	E-218	E-219	E-220	E-221	E-222	E-223	E-224	E-225	E-226	E-227	E-228	E-229	E-230	E-231	E-232	E-233	E-234	E-235	E-236	E-237	E-238	E-239	E-240	E-241	E-242	E-243	E-244	E-245	E-246	E-247	E-248	E-249	E-250	E-251	E-252	E-253	E-254	E-255	E-256	E-257	E-258	E-259	E-260	E-261	E-262	E-263	E-264	E-265	E-266	E-267	E-268	E-269	E-270	E-271	E-272	E-273	E-274	E-275	E-276	E-277	E-278	E-279	E-280	E-281	E-282	E-283	E-284	E-285	E-286	E-287	E-288	E-289	E-290	E-291	E-292	E-293	E-294	E-295	E-296	E-297	E-298	E-299	E-300	E-301	E-302	E-303	E-304	E-305	E-306	E-307	E-308	E-309	E-310	E-311	E-312	E-313	E-314	E-315	E-316	E-317	E-318	E-319	E-320	E-321	E-322	E-323	E-324	E-325	E-326	E-327	E-328	E-329	E-330	E-331	E-332	E-333	E-334	E-335	E-336	E-337	E-338	E-339	E-340	E-341	E-342	E-343	E-344	E-345	E-346	E-347	E-348	E-349	E-350	E-351	E-352	E-353	E-354	E-355	E-356	E-357	E-358	E-359	E-360	E-361	E-362	E-363	E-364	E-365	E-366	E-367	E-368	E-369	E-370	E-371	E-372	E-373	E-374	E-375	E-376	E-377	E-378	E-379	E-380	E-381	E-382	E-383	E-384	E-385	E-386	E-387	E-388	E-389	E-390	E-391	E-392	E-393	E-394	E-395	E-396	E-397	E-398	E-399	E-400	E-401	E-402	E-403	E-404	E-405	E-406	E-407	E-408	E-409	E-410	E-411	E-412	E-413	E-414	E-415	E-416	E-417	E-418	E-419	E-420	E-421	E-422	E-423	E-424	E-425	E-426	E-427	E-428	E-429	E-430	E-431	E-432	E-433	E-434	E-435	E-436	E-437	E-438	E-439	E-440	E-441	E-442	E-443	E-444	E-445	E-446	E-447	E-448	E-449	E-450	E-451	E-452	E-453	E-454	E-455	E-456	E-457	E-458	E-459	E-460	E-461	E-462	E-463	E-464	E-465	E-466	E-467	E-468	E-469	E-470	E-471	E-472	E-473	E-474	E-475	E-476	E-477	E-478	E-479	E-480	E-481	E-482	E-483	E-484	E-485	E-486	E-487	E-488	E-489	E-490	E-491	E-492	E-493	E-494	E-495	E-496	E-497	E-498	E-499	E-500	E-501	E-502	E-503	E-504	E-505	E-506	E-507	E-508	E-509	E-510	E-511	E-512	E-513	E-514	E-515	E-516	E-517	E-518	E-519	E-520	E-521	E-522	E-523	E-524	E-525	E-526	E-527	E-528	E-529	E-530	E-531	E-532	E-533	E-534	E-535	E-536	E-537	E-538	E-539	E-540	E-541	E-542	E-543	E-544	E-545	E-546	E-547	E-548	E-549	E-550	E-551	E-552	E-553	E-554	E-555	E-556	E-557	E-558	E-559	E-560	E-561	E-562	E-563	E-564	E-565	E-566	E-567	E-568	E-569	E-570	E-571	E-572	E-573	E-574	E-575	E-576	E-577	E-578	E-579	E-580	E-581	E-582	E-583	E-584	E-585	E-586	E-587	E-588	E-589	E-590	E-591	E-592	E-593	E-594	E-595	E-596	E-597	E-598	E-599	E-600	E-601	E-602	E-603	E-604	E-605	E-606	E-607	E-608	E-609	E-610	E-611	E-612	E-613	E-614	E-615	E-616	E-617	E-618	E-619	E-620	E-621	E-622	E-623	E-624	E-625	E-626	E-627	E-628	E-629	E-630	E-631	E-632	E-633	E-634	E-635	E-636	E-637	E-638	E-639	E-640	E-641	E-642	E-643	E-644	E-645	E-646	E-647	E-648	E-649	E-650	E-651	E-652	E-653	E-654	E-655	E-656	E-657	E-658	E-659	E-660	E-661	E-662	E-663	E-664	E-665	E-666	E-667	E-668	E-669	E-670	E-671	E-672	E-673	E-674	E-675	E-676	E-677	E-678	E-679	E-680	E-681	E-682	E-683	E-684	E-685	E-686	E-687	E-688	E-689	E-690	E-691	E-692	E-693	E-694	E-695	E-696	E-697	E-698	E-699	E-700	E-701	E-702	E-703	E-704	E-705	E-706	E-707	E-708	E-709	E-710	E-711	E-712	E-713	E-714	E-715	E-716	E-717	E-718	E-719	E-720	E-721	E-722	E-723	E-724	E-725	E-726	E-727	E-728	E-729	E-730	E-731	E-732	E-733	E-734	E-735	E-736	E-737	E-738	E-739	E-740	E-741	E-742	E-743	E-744	E-745	E-746	E-747	E-748	E-749	E-750	E-751	E-752	E-753	E-754	E-755	E-756	E-757	E-758	E-759	E-760	E-761	E-762	E-763	E-764	E-765	E-766	E-767	E-768	E-769	E-770	E-771	E-772	E-773	E-774	E-775	E-776	E-777	E-778	E-779	E-780	E-781	E-782	E-783	E-784	E-785	E-786	E-787	E-788	E-789	E-790	E-791	E-792	E-793	E-794	E-795	E-796	E-797	E-798	E-799	E-800	E-801	E-802	E-803	E-804	E-805	E-806	E-807	E-808	E-809	E-810	E-811	E-812	E-813	E-814	E-815	E-816	E-817	E-818	E-819	E-820	E-821	E-822	E-823	E-824	E-825	E-826	E-827	E-828	E-829	E-830	E-831	E-832	E-833	E-834	E-835	E-836	E-837	E-838	E-839	E-840	E-841	E-842	E-843	E-844	E-845	E-846	E-847	E-848	E-849	E-850	E-851	E-852	E-853	E-854	E-855	E-856	E-857	E-858	E-859	E-860	E-861	E-862	E-863	E-864	E-865	E-866	E-867	E-868	E-869	E-870	E-871	E-872	E-873	E-874	E-875	E-876	E-877	E-878	E-879	E-880	E-881	E-882	E-883	E-884	E-885	E-886	E-887	E-888	E-889	E-890	E-891	E-892	E-893	E-894	E-895	E-896	E-897	E-898	E-899	E-900	E-901	E-902	E-903	E-904	E-905	E-906	E-907	E-908	E-909	E-910	E-911	E-912	E-913	E-914	E-915	E-916	E-917	E-918	E-919	E-920	E-921	E-922	E-923	E-924	E-925	E-926	E-927	E-928	E-929	E-930	E-931	E-932	E-933	E-934	E-935	E-936	E-937	E-938	E-939	E-940	E-941	E-942	E-943	E-944	E-945	E-946	E-947	E-948	E-949	E-950	E-951	E-952	E-953	E-954	E-955	E-956	E-957	E-958	E-959	E-960
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**Table A-4**  
**Non Impacted Soil Analytical Data**  
7700 Earhart Boulevard  
New Orleans, Louisiana

[illegible]

Table A-4

\\NA\CLIENTS\THAN\118267\Working\RD Plan\Appendix A\ Appendix A Chemistry Data.xls

Table A-4

MANUFACTURED THAN 115°C) Workline) 8D Plan) A round (x) A) Anomalous A. Chemistry Data is



Table A-4

PARAMETER	Fraction	UNITS																	
		SS-A-1 1-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-10 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-11 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-12 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-13 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-14 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-15 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-2 1-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-3 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-4 16-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-5 31-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-6 1-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-7 28-in-89 0-4 ft FI ON SOIL-Golder Program	SS-A-8 28-in-89 0-4 ft FI ON SOIL-Golder Program				
ARGENTUM	Volatiles																		
ALUMINUM	Metal																		
BARIUM	Metal																		
CALCIUM	Metal																		
CHROMIUM	Metal																		
COPPER	Metal																		
IRON	Metal																		
MAGNESIUM	Metal																		
MANGANESE	Metal																		
NICKEL	Metal																		
POTASSIUM	Metal																		
SELENIUM	Metal																		
SODIUM	Metal																		
SILICON	Metal																		
ARSENIC	Metal																		
LEAD	Metal																		
ZINC	Metal																		
BERYLLIUM	Metal																		
MERCURY	Metal																		
ANTHRACENE	Volatiles																		
1-METHYLNAPHTHALENE	Semivolatile																		
2-METHYLNAPHTHALENE	Semivolatile																		
CHLORODANE	OCL Pesticide																		
ETHYL BENZENE	OCL Pesticide																		
1,2-DICHLOROBENZENE	Volatiles																		
1,3-DICHLOROBENZENE	Volatiles																		
1,4-DICHLOROBENZENE	OCL Pesticide																		
ALDRIN	OCL Pesticide																		
BETA BHC	Semivolatile																		
DELTA BHC	OCL Pesticide																		
GAMMA BHC (LINDANE)	OCL Pesticide																		
TOXAPHENE	OCL Pesticide																		
1,2,3-TRICHLOROBENZENE	Volatiles																		
1,2,4-TRICHLOROBENZENE	Volatiles																		
1,2,5-TRICHLOROBENZENE	Volatiles																		
PHENANTHRENE	Herbicide																		
4,4'-DDE	OCL Pesticide																		
DEF	OCL Pesticide																		
CHLOROBENZENE	Volatiles																		
METHYLENE CHLORIDE	Volatiles																		
1,1,1-TRICHLOROETHANE	Herbicide																		
1,1,2-TRICHLOROETHANE	Herbicide																		
1,1,2,2-TETRACHLOROETHANE	Herbicide																		
1,1,2,2,3-PENTACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3-HEPTACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4-HEPTACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4-OCTACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5-NONACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6-DECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7-UNDACACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8-DODECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9-TRIDECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13-HEPTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14-OCTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15-NONADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16-EICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17-TRICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21-HEPTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22-OCTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23-NONADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24-EICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25-TRICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29-HEPTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30-OCTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31-NONADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32-EICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33-TRICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37-HEPTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38-OCTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39-NONADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40-EICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41-TRICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45-HEPTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46-OCTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47-NONADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48-EICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49-TRICADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50-TETRADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51-PENTADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52-HEXADECACHLOROPENTANE	Herbicide																		
1,1,2,2,3,3,4,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,4																			

Table A-4

[illegible]

Table A-4

\\NACTHENT\THAND\118267\Working\A\Appendix A\Chemistry Data.xls

Table A-4

\\CLIENTS\THAN\118367\Working\RD Plan\Appendix A\Appendix A Chemistry Data.xls

Table A-4

\\S:\CLIENTS\THAM\118767\Working\ED Plan\Appendix A\ Amend to A Chemistry Data.xls

Table A-4  
Non Impacted Soil Analytical Data



Table A-4

Table A-4  
Non Impacted Soil Analytical Data  
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Table A-4  
Non Impacted Soil Analytical Data  
7700 Earhart Boulevard  
New Orleans, Louisiana

PARAMETER	Fraction	Cas No.	UNITS	Sample Name	Sample Location	Sample Date	Sample Interval (ft)	Start Depth (ft)	End Depth (ft)	Items Crimp Name	Sample Matrix	Location Description
BIS(2-CHLOROPROPYL) ETHER	Semivolatile	108-60-1	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
BIS(2-ETHYLHEXYL) PHTHALATE	Semivolatile	117-81-7	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
BUTYL BENZYL PHTHALATE	Semivolatile	85-68-7	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CHRYSENE	Semivolatile	218-01-9	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DI-N-BUTYL PHTHALATE	Semivolatile	84-74-2	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DI-N-ETHYL PHTHALATE	Semivolatile	117-84-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DIBENZO(A,H)ANTHRACENE	Semivolatile	53-70-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DIBENZO(B,K)FLUANTHRENE	Semivolatile	133-64-9	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DIETHYL PHTHALATE	Semivolatile	84-66-2	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DIETHYL PHTHALATE	Semivolatile	131-11-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
FLUORANTHENE	Semivolatile	206-44-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
HEXACHLOROBENZENE	Semivolatile	118-74-1	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
HEXACHLOROCYCLOPENTADIENE	Semivolatile	77-47-8	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
HEXACHLOROTHANE	Semivolatile	67-72-1	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
INDENO(1,2,3-CD) PYRENE	Semivolatile	193-39-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
N-NITROSODI-N-PROPYLAMINE	Semivolatile	621-64-7	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
N-NITROSODIMETHYLAMINE	Semivolatile	62-75-9	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
NITROBENZENE	Semivolatile	98-95-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
PERYLENE	Semivolatile	129-00-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
PYRENE	Semivolatile	79-34-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
1,1,2,2-TETRACHLOROETHANE	Volatile	79-34-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
1,1-DICHLOROETHANE	Volatile	75-34-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
1,1-DICHLOROPROPANE	Volatile	75-35-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
1,2-DICHLOROETHANE	Volatile	107-06-2	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
2-CHLOROPROPANE	Volatile	78-57-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
2-CHLOROTETRAHYDRO-2H-PYRAN	Volatile	110-75-8	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
2-HEXANONE	Volatile	591-78-6	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
4-METHYL-2-PENTANONE	Volatile	108-10-1	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
BROMODIBROMOMETHANE	Volatile	75-25-2	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
BROMOMETHANE	Volatile	74-83-9	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CARBON DISULFIDE	Volatile	75-15-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CARBON TETRACHLORIDE	Volatile	56-23-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CHLOROETHANE	Volatile	75-00-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CHLOROMETHANE	Volatile	67-66-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CHLOROMETHANE	Volatile	74-87-3	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CS-1,3-DICHLOROPROPENE	Volatile	10661-01-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
DIBROMOCHLOROMETHANE	Volatile	124-48-1	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
STYRENE	Volatile	100-42-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
TRANS-1,2-DICHLOROETHENE	Volatile	156-60-5	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
TRANS-1,3-DICHLOROPROPENE	Volatile	10661-02-6	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
TRICHLOROETHYLENE	Volatile	79-06-6	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
VINYL CHLORIDE	Volatile	75-01-4	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
ANTIMONY	Metal	7440-36-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CADMIUM	Metal	7440-43-9	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
CORALIT	Metal	7440-48-4	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
STYRAIDE	Metal	5712-25	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	
THALLIUM	Metal	7440-28-0	MG/KG	TYPE-1	TYPE-1	24-Feb-88	1-1.5 R			SO	SOIL	

**Table A-5**  
Sediment Sample Analytical Data  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

	CAS#	Parameter	Sample Name		DM-1-99-SED	DM-2-99-SED	DM-3-99-SED	DM-31-99-SED	DM-32-99-SED	DM-4-99-SED	DM-5-99-SED	DM-51-99-SED	DM-52-99-SED	DM-6-99-SED																																																																																																																																																																																																																																																																																																						
			Sample Location Code	Sample Date	DM-01 *	DM-02 *	DM-03	DM-31	DM-32	DM-04	DM-05	DM-51	DM-52	DM-06																																																																																																																																																																																																																																																																																																						
															Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location Description	Sample Location Code	Sample Date	Sample Interval (ft bgs)	Location

Table A-5  
Sediment Sample Analytical Data  
1 of 6

Table A-5  
Sediment Sample Analytical Data  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS#	Fraction	Units	DM-1-99-SED DM-01 * 2-Mar-99 3.2 - 3.3 FT Burdette	DM-2-99-SED DM-02 * 2-Mar-99 3.2 - 3.6 FT Burdette	DM-3-99-SED DM-03 2-Mar-99 3.5 - 3.7 FT Burdette	DM-31-99-SED DM-31 2-Mar-99 3.7 - 4.3 FT Burdette	DM-32-99-SED DM-32 2-Mar-99 3.8 - 4.7 FT Burdette	DM-4-99-SED DM-04 4-Mar-99 4 - 4.1 FT Pine North	DM-5-99-SED DM-05 2-Mar-99 4.7 - 4.9 FT Pine North	DM-51-99-SED DM-51 2-Mar-99 8 - 8.3 FT Pine North	DM-52-99-SED DM-52 4-Mar-99 9 - 10 FT Pine North	DM-6-99-SED DM-06 4-Mar-99 4.5 - 4.6 FT Pine South
MALATHION	121-75-5	OP Pesticides	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
METHYL PARATHION	298-00-0	OP Pesticides	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHORATE	298-02-2	OP Pesticides	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ETHYL PARATHION	56-38-2	OP Pesticides	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BENZO(A)ANTHRACENE	56-55-3	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BENZO(A)PYRENE	50-32-8	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BENZO(B)FLUORANTHENE	205-99-2	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BENZO(GH)PERYLENE	191-24-2	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BENZO(K)FLUORANTHENE	207-08-9	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
BUTYLBENZYLPHTHALATE	85-68-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DIBENZO(A,H)ANTHRACENE	53-70-3	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DIETHYLPHTHALATE	84-66-2	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
INDENO(1,2,3-CD)PYRENE	193-39-5	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,2-OXYBIS(1-CHLOROPROPANE)	108-60-1	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ACENAPHTHENE	83-32-9	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ANTHRACENE	120-12-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
CARBAZOLE	86-74-8	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
CHLORANILINE	27134-26-5	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-CHLORONAPHTHALENE	91-58-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-CHLOROPHENOL	95-57-8	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
CHRYSENE	218-01-9	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DI-N-BUTYL PHTHALATE	84-74-2	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
DIBENZOFURAN	132-64-9	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-DICHLOROBENZENE	95-50-1	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-DICHLOROBENZENE	541-73-1	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-DICHLOROBENZENE	106-46-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,4-DICHLOROPHENOL	120-83-2	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,4-DIMETHYLPHENOL	105-67-9	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2,4-DINITROPHENOL	51-28-5	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
FLUORENE	86-73-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
FLUORANTHENE	206-44-0	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
HEXACHLOROBUTADIENE	87-68-3	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
ISOPHORONE	78-59-1	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-METHYL NAPHTHALENE	91-57-6	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
2-METHYLPHENOL	95-48-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-METHYLPHENOL	106-44-5	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
NAPHTHALENE	91-20-3	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-NITROANILINE	88-74-4	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
4-NITROPHENOL	100-01-6	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
N-NITROSODIPHENYLAMINE	100-02-7	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PENTACHLOROPHENOL	86-30-6	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
PHENANTHRENE	87-86-5	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
	85-01-8	Semivolatiles	mg/Kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05

Table A-5  
Sediment Sample Analytical Data  
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Table A-5  
Sediment Sample Analytical Data  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS#	Sample Name Sample Location Code Sample Date Sample Interval (ft bgs) Location Description	Fraction	Units	DM-1-99-SED DM-01 * 2-Mar-99 3.2 - 3.3 FT Burdette	DM-2-99-SED DM-02 * 2-Mar-99 3.2 - 3.6 FT Burdette	DM-3-99-SED DM-03 2-Mar-99 3.5 - 3.7 FT Burdette	DM-31-99-SED DM-31 2-Mar-99 3.7 - 4.3 FT Burdette	DM-32-99-SED DM-32 2-Mar-99 3.8 - 4.7 FT Burdette	DM-4-99-SED DM-04 4-Mar-99 4 - 4.1 FT Pine North	DM-5-99-SED DM-05 2-Mar-99 4.7 - 4.9 FT Pine North	DM-51-99-SED DM-51 2-Mar-99 8 - 8.3 FT Pine North	DM-52-99-SED DM-52 4-Mar-99 9 - 10 FT Pine North	DM-6-99-SED DM-06 4-Mar-99 4.5 - 4.6 FT Pine South
PHENOL	108-95-2		Semivolatiles	mg/Kg	<3.0	<3.0	<3.1	<31	<37	<35	<29	<33	<76	<37
PYRENE	129-00-0		Semivolatiles	mg/Kg	<3.0	<3.0	<3.1	<31	<37	<35	<29	<33	<76	<37
1,2,4-TRICHLOROBENZENE	120-82-1		Semivolatiles	mg/Kg	<3.0	<3.0	<3.1	<31	<37	<35	<29	<33	<76	<37
2,4,6-TRICHLOROPHENOL	88-06-2		Semivolatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
1,1,1-TRICHLOROETHANE	71-55-6		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
1,1,2-TRICHLOROETHANE	79-00-5		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
1,1-DICHLOROETHANE	75-34-3		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
1,1-DICHLOROETHANE	75-35-4		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
1,2-DICHLOROETHANE	107-06-2		Volatiles	mg/Kg	<2.8	<1.1	<1.2	<1.2	<1.5	<1.4	<1.2	<1.3	<3	<1.5
2-HEXANONE	591-78-6		Volatiles	mg/Kg	<2.8	<1.1	<1.2	<1.2	<1.5	<1.4	<1.2	<1.3	<3	<1.5
4-METHYL-2-PENTANONE	108-10-1		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
BENZENE	71-43-2		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
CARBON DISULFIDE	75-15-0		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
CARBON TETRACHLORIDE	56-23-5		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
CHLOROFORM	67-66-3		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
CIS-1,3-DICHLOROPROPENE	10061-01-5		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
ETHYL BENZENE	100-41-4		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
METHYLENE CHLORIDE	75-09-2		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
STYRENE	100-42-5		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
TOLUENE	108-88-3		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
TRANS-1,3-DICHLOROPROPENE	10061-02-6		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
TRICHLOROETHENE	79-01-6		Volatiles	mg/Kg	<7.1	<28	<31	<31	<37	<35	<29	<33	<76	<37
TEST DATA	#N/A		#N/A	%	13	20	36	41	59	67	110	110	136	140

Table A-5  
Sediment Sample Analytical Data  
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Table A-5  
Sediment Sample Analytical Data  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS#	Fraction	Units	Sample Name Sample Location Code Sample Date Sample Interval (ft bgs) Location Description	DM-61 4-Mar-99 4.6 - 4.8 FT Pine South	DM-62 2-Mar-99 5.1 - 5.2 FT Pine South	5-20-STA-1 13-May-93 6.3 - 6.4 FT Lowerline	STA-1A-99-SED STA-1A 2-Mar-99 6.5 - 6.7 FT Lowerline	STA-2-99-SED STA-2 * 2-Mar-99 7.4 - 7.8 FT Lowerline	STA-3-99-SED STA-3 4-Mar-99 8.6 - 9.3 FT Lowerline
4,4'-DDD	72-54-8	OCL Pesticides	mg/Kg		31	8.5	13	0.31	56	1.5
4,4'-DDE	72-55-9	OCL Pesticides	mg/Kg		16.1	6.7	1.4	0.14	11.1	1.3
DELDRIN	60-57-1	OCL Pesticides	mg/Kg		<27	3.5	0.69	0.4	23	1.1
GAMMA CHLORDANE	5103-74-2	OCL Pesticides	mg/Kg		46	18	6.1	0.39	150	3.3
4,4'-DDT	50-29-3	OCL Pesticides	mg/Kg		<27	15	5.2	0.12	20	<92
ALPHA CHLORDANE	5103-71-9	OCL Pesticides	mg/Kg		<27	5.2	1.2	0.12	39	0.92
ENDRIN	72-20-8	OCL Pesticides	mg/Kg		<27	1.8	0.99	0.37	14	.77 J
2-BUTANONE	78-93-3	Volatiles	mg/Kg		2.1 J B	1.6 J B	<100	<1.3	1.8 J B	1.7 J B
ALDRIN	309-00-2	OCL Pesticides	mg/Kg		<27	.56 J	1.9	0.037	28	.54 J
ACETONE	67-64-1	Volatiles	mg/Kg		2.1 J B	1.6 J	<100	1.3 J	1.8 J	1.7 J B
DELTA BHC	319-86-8	OCL Pesticides	mg/Kg		<27	.59 J	2	0.13	<12	.45 J
ENDOSULFAN II	33213-65-9	OCL Pesticides	mg/Kg		<27	.45 J	<0.05	.012 J	<12	<92
HEPTACHLOR	76-44-8	OCL Pesticides	mg/Kg		<27	<1.1	0.18	0.082	160	1.5
CHLORDANE	57-74-9	OCL Pesticides	mg/Kg		<270	<1.1	<0.10	0.27	500	5.3 J
DINOSB (DNBP)	88-85-7	Herbicides	mg/Kg		<27	<1.1	0.45	0.025	28	.47 J
ALPHA BHC	319-84-6	OCL Pesticides	mg/Kg		<27	<1.1	0.44	<0.02	22	<92
BETA BHC	319-85-7	OCL Pesticides	mg/Kg		<27	<1.1	7.5	.23 J	.11 J	2.1
BIS-(2-ETHYLHEXYL)-PHTHALATE	117-81-7	Semivolatiles	mg/Kg		<53	<39	<0.6	<32	0.47	1.4
TETRACHLOROETHENE	127-18-4	Volatiles	mg/Kg		<53	<39	<0.05	<0.02	12	<92
1,2-DICHLOROETHENE (TOTAL)	540-59-0	Volatiles	mg/Kg		<53	<39	<0.05	<0.02	54	<92
ENDOSULFAN I	959-98-8	OCL Pesticides	mg/Kg		<27	<1.1	<0.05	<0.02	<12	<92
GAMMA BHC (LINDANE)	58-89-9	OCL Pesticides	mg/Kg		<27	<1.1	0.19	<0.02	<12	<92
HEPTACHLOR EPOXIDE	1024-57-3	OCL Pesticides	mg/Kg		<27	<1.1	<0.05	<0.02	<12	<92
ENDOSULFAN SULFATE	1031-07-8	OCL Pesticides	mg/Kg		<27	<1.1	<0.05	<0.02	<12	<92
ENDRIN ALDEHYDE	7421-93-4	OCL Pesticides	mg/Kg		<27	<1.1	<0.05	<0.02	<12	<92
ENDRIN KETONE	53494-70-5	OCL Pesticides	mg/Kg		<1000	<42	<0.1	0.099	<480	<36
TOXAPHENE	8001-35-2	OCL Pesticides	mg/Kg		<33	<39	<0.6	<32	0.83	<43
CHLOROBENZENE	108-90-7	Volatiles	mg/Kg		<1.1	<78	0.8 J	<64	<9	<86
VINYL CHLORIDE	75-01-4	Volatiles	mg/Kg		<53	<39	<0.6	<32	<45	<43
XYLENES	1330-20-7	Herbicides	mg/Kg				<0.10	<0.10	<0.10	
DICAMBA	1918-00-9	Herbicides	mg/Kg				<0.20	<0.20	<0.20	
2,4-D	94-75-7	Herbicides	mg/Kg				<0.20	<0.20	<0.20	
2,4-DB	94-82-6	Herbicides	mg/Kg				<0.10	<0.10	<0.10	
2,4,5-T	93-76-5	Herbicides	mg/Kg				<0.10	<0.10	<0.10	
2,4,5-TP	93-72-1	Herbicides	mg/Kg				<0.20	<0.20	<0.20	
DICHLOROPROP (2,4-DP)	120-36-5	Herbicides	mg/Kg				<0.05	<0.05	<0.05	
METHOXYCHLOR	72-43-5	OCL Pesticides	mg/Kg		<52	<2.1	<0.05	<0.03	<24	<1.8
CROTOXYPHOS	7700-17-6	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	
DEF	78-48-8	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	
DIAZINON	333-41-5	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	
DIMETHOATE	60-51-5	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	
DIPHENAMID	957-51-7	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	
ETHION	563-12-2	OP Pesticides	mg/Kg				<0.05	<0.05	<0.05	

Table A-5  
Sediment Sample Analytical Data  
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Table A-5  
Sediment Sample Analytical Data  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS#	Fraction	Units	Sample Name Sample Location Code Sample Date Sample Interval (ft bgs) Location Description	DM-61-99-SED DM-61 4-Mar-99 4.6 - 4.8 FT Pine South	DM-62-99-SED DM-62 2-Mar-99 5.1 - 5.2 FT Pine South	5-20-STA-1 STA-1 * 13-May-93 6.3 - 6.4 FT Lowerline	STA-1A-99-SED STA-1A 2-Mar-99 6.5 - 6.7 FT Lowerline	STA-2-99-SED STA-2 * 2-Mar-99 7.4 - 7.8 FT Lowerline	STA-3-99-SED STA-3 4-Mar-99 8.6 - 9.3 FT Lowerline
MALATHION	121-75-5	OP Pesticides	mg/Kg				<0.05		<0.05	
METHYL PARATHION	298-00-0	OP Pesticides	mg/Kg				<0.05		<0.05	
PHORATE	298-02-2	OP Pesticides	mg/Kg				<0.05		<0.05	
ETHYL PARATHION	56-38-2	OP Pesticides	mg/Kg				<0.05		<0.05	
BENZO(A)ANTHRACENE	56-55-3	Semivolatiles	mg/Kg				<0.05		<0.05	
BENZO(A)PYRENE	50-32-8	Semivolatiles	mg/Kg				<0.05		<0.05	
BENZO(B)FLUORANTHENE	205-99-2	Semivolatiles	mg/Kg				<0.05		<0.05	
BENZO(GH)PERYLENE	191-24-2	Semivolatiles	mg/Kg				<0.05		<0.05	
BENZO(K)FLUORANTHENE	207-08-9	Semivolatiles	mg/Kg				<0.05		<0.05	
BUTYLBENZYLPHthalATE	83-68-7	Semivolatiles	mg/Kg				<0.05		<0.05	
DIBENZO(A,H)ANTHRACENE	53-70-3	Semivolatiles	mg/Kg				<0.05		<0.05	
DIETHYLPHthalATE	84-66-2	Semivolatiles	mg/Kg				<0.05		<0.05	
INDENO(1,2,3-CD)PYRENE	193-39-5	Semivolatiles	mg/Kg				<0.05		<0.05	
2,2'-OXYBIS-(1-CHLOROPROPANE)	108-60-1	Semivolatiles	mg/Kg				<0.05		<0.05	
ACENAPHTHENE	83-32-9	Semivolatiles	mg/Kg				<0.05		<0.05	
ANTHRACENE	120-12-7	Semivolatiles	mg/Kg				<0.05		<0.05	
CARBAZOLE	86-74-8	Semivolatiles	mg/Kg				<0.05		<0.05	
CHLOROANILINE	27134-26-5	Semivolatiles	mg/Kg				<0.05		<0.05	
2-CHLORONAPHTHALENE	91-58-7	Semivolatiles	mg/Kg				<0.05		<0.05	
2-CHLOROPHENOL	95-57-8	Semivolatiles	mg/Kg				<0.05		<0.05	
CHRYSENE	218-01-9	Semivolatiles	mg/Kg				<0.05		<0.05	
DI-N-BUTYL PHthalATE	84-74-2	Semivolatiles	mg/Kg				<0.05		<0.05	
DIBENZOFURAN	132-64-9	Semivolatiles	mg/Kg				<0.05		<0.05	
1,2-DICHLOROBENZENE	95-50-1	Semivolatiles	mg/Kg				<0.05		<0.05	
1,3-DICHLOROBENZENE	541-73-1	Semivolatiles	mg/Kg				<0.05		<0.05	
1,4-DICHLOROBENZENE	106-46-7	Semivolatiles	mg/Kg				<0.05		<0.05	
2,4-DICHLOROPHENOL	120-83-2	Semivolatiles	mg/Kg				<0.05		<0.05	
2,4-DIMETHYLPHENOL	105-67-9	Semivolatiles	mg/Kg				<0.05		<0.05	
2,4-DINITROPHENOL	51-28-5	Semivolatiles	mg/Kg				<0.05		<0.05	
FLUORENE	86-73-7	Semivolatiles	mg/Kg				<0.05		<0.05	
FLUORANTHENE	206-44-0	Semivolatiles	mg/Kg				<0.05		<0.05	
HEXACHLOROBUTADIENE	87-68-3	Semivolatiles	mg/Kg				<0.05		<0.05	
ISOPHORONE	78-59-1	Semivolatiles	mg/Kg				<0.05		<0.05	
2-METHYLNAPHTHALENE	91-57-6	Semivolatiles	mg/Kg				<0.05		<0.05	
2-METHYLPHENOL	95-48-7	Semivolatiles	mg/Kg				<0.05		<0.05	
4-METHYLPHENOL	106-44-5	Semivolatiles	mg/Kg				<0.05		<0.05	
NAPHTHALENE	91-20-3	Semivolatiles	mg/Kg				<0.05		<0.05	
2-NITROANILINE	88-74-4	Semivolatiles	mg/Kg				<0.05		<0.05	
4-NITROANILINE	100-01-6	Semivolatiles	mg/Kg				<0.05		<0.05	
4-NITROPHENOL	100-02-7	Semivolatiles	mg/Kg				<0.05		<0.05	
N-NITROSODIPHENYLAMINE	86-30-6	Semivolatiles	mg/Kg				<0.05		<0.05	
PENTACHLOROPHENOL	87-86-5	Semivolatiles	mg/Kg				<0.05		<0.05	
PHENANTHRENE	85-01-8	Semivolatiles	mg/Kg				<0.05		<0.05	

**Table A-5**  
**Sediment Sample Analytical Data**  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Parameter	CAS#	Sample Name		DM-61-99-SED DM-61 4-Mar-99 4.6 - 4.8 FT Pine South	DM-62-99-SED DM-62 5.1 - 5.2 FT Pine South	5-20-STA-1 STA-1 * 13-May-93 6.3 - 6.4 FT Lowerline	STA-1A-99-SED STA-1A 2-Mar-99 6.5 - 6.7 FT Lowerline	STA-2-99-SED STA-2 * 2-Mar-99 7.4 - 7.8 FT Lowerline	STA-3-99-SED STA-3 4-Mar-99 8.6 - 9.3 FT Lowerline
		Sample Location Code	Sample Date						
		Sample Interval (ft bgs)	Location Description						
		Fraction	Units						
PHENOL	108-95-2	Semivolatiles	mg/Kg			<3.0		<3.0	
PYRENE	129-00-0	Semivolatiles	mg/Kg			<3.0		<3.0	
1,2,4-TRICHLOROBENZENE	120-82-1	Semivolatiles	mg/Kg			<3.0		<3.0	
2,4,6-TRICHLOROPHENOL	88-06-2	Semivolatiles	mg/Kg			<3.0		<3.0	
1,1,1-TRICHLOROETHANE	71-55-6	Volatiles	mg/Kg	<39	<39	<0.6	<32	<45	<43
1,1,2-TRICHLOROETHANE	79-00-5	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
1,1-DICHLOROETHANE	75-34-3	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
1,1-DICHLOROETHENE	75-35-4	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
1,2-DICHLOROETHANE	107-06-2	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
2-HEXANONE	591-78-6	Volatiles	mg/Kg	<2.1	<1.6	<50	<1.3	<1.8	<1.7
4-METHYL-2-PENTANONE	108-10-1	Volatiles	mg/Kg	<2.1	<1.6	<50	<1.3	<1.8	<1.7
BENZENE	71-43-2	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
CARBON DISULFIDE	75-15-0	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
CARBON TETRACHLORIDE	56-23-5	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
CHLOROFORM	67-66-3	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
CIS-1,3-DICHLOROPROPENE	10061-01-5	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
ETHYL BENZENE	100-41-4	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
METHYLENE CHLORIDE	75-09-2	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
STYRENE	100-42-5	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
TOLUENE	108-88-3	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
TRANS-1,3-DICHLOROPROPENE	10061-02-6	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
TRICHLOROETHENE	79-01-6	Volatiles	mg/Kg	<53	<39	<0.6	<32	<45	<43
TEST DATA	#N/A	#N/A	%	160	200	10	230	1300	

**TABLE A-6**  
**Air Volatile Organic Compounds Analytical Data**  
 7700 Earhart Boulevard Facility  
 New Orleans, Louisiana

Sample Number Sample Depth (feet bgs) Location/Street Sample Date Time Compound	CAS #	Region 6 Ambient Air Screening Level Residential Use ppb (v/v)	OS-AIR-1 0 TO 4 Onsite 2/18/1999 8:07 ppb/(v/v)	OS-AIR-2 0 TO 4 Onsite 2/18/1999 13:03 ppb/(v/v)	EA-AIR-1 0 TO 4 Earhart Blvd 2/18/1999 14:24 ppb/(v/v)	EA-AIR-3 0 TO 4 Earhart Blvd 2/19/1999 10:55 ppb/(v/v)	EA-AIR-4 0 TO 4 Earhart Blvd 2/23/1999 12:30 ppb/(v/v)
Dichlorodifluoromethane	75-71-8	41.47	<15000	<0.40	<2000	<0.66	<0.80
Chlorodifluoromethane	75-45-6	14233.98	<15000	<0.40	<2000	<0.66	<0.80
1,2-Dichloro-1,1,2,2-tetrafluoroethane	76-14-2	#N/A	<15000	<0.40	<2000	<0.66	<0.80
Chloromethane	74-87-3	0.51	<37000	<0.99	<4900	<1.6	<2.0
Vinyl chloride	75-01-4	0.01	59000	<0.40	<2000	<0.66	5.1
n-Butane	106-97-8	#N/A	<15000	<0.40	<2000	42	23
1,3-Butadiene	106-99-0	0.00	<15000	<0.40	<2000	<0.66	<0.80
Bromomethane	74-83-9	1.32	<15000	<0.40	<2000	<0.66	<0.80
Chloroethane	75-00-3	3891.26	<15000	<0.40	<2000	<0.66	0.89
Trichlorofluoromethane	75-69-4	127.85	<15000	<0.40	<2000	<0.66	<0.80
Pentane	109-66-0	#N/A	<37000	<0.99	<4900	8.1	8
1,1-Dichloroethene	75-35-4	0.01	58000	<0.40	<2000	<0.66	<0.80
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	4015.47	<15000	<0.40	<2000	<0.66	<0.80
Carbon disulfide	75-15-0	231.01	<15000	<0.40	<2000	23	<0.80
3-Chloropropene	1070-51-1	#N/A	<15000	<0.40	<2000	<0.66	<0.80
Methylene chloride	75-09-2	1.16	50000	<0.40	<2000	<0.66	<0.80
trans-1,2-Dichloroethene	156-60-5	247.98	<15000	<0.40	<2000	<0.66	<0.80
n-Hexane	110-54-3	58.26	<15000	<0.40	<2000	3	3.3
1,1-Dichloroethane	75-34-3	2148.29	160000	<0.40	<2000	<0.66	7.5
cis-1,2-Dichloroethene	156-59-2	85064.48	120000	<0.40	<2000	1.3	<0.80
Chloroform	67-66-3	0.02	<15000	<0.40	<2000	<0.66	<0.80
1,1,1-Trichloroethane	71-55-6	187.90	220000	<0.40	<2000	<0.66	<0.80
Cyclohexane	110-82-7	#N/A	<15000	<0.40	<2000	1.9	<0.80
Carbon tetrachloride	56-23-5	0.02	<15000	<0.40	<2000	<0.66	<0.80
Benzene	71-43-2	0.81	22000	<0.40	<2000	7.2	38
1,2-Dichloroethane	107-06-2	0.02	<15000	<0.40	<2000	<0.66	<0.80
n-Heptane	142-82-5	#N/A	<15000	<0.40	<2000	1.8	1.9
Trichloroethene	79-01-6	0.21	150000	<0.40	<2000	2.3	<0.80
1,2-Dichloropropane	78-87-5	0.02	<15000	<0.40	<2000	<0.66	<0.80
Dibromomethane	74-95-3	138.30	<15000	<0.40	<2000	<0.66	<0.80
Bromodichloromethane	75-27-4	146.74	<15000	<0.40	<2000	<0.66	<0.80
cis-1,3-Dichloropropene	542-75-6	0.01	<15000	<0.40	<2000	<0.66	<0.80
Toluene	108-88-3	104.83	23000	<0.40	<2000	14	6.1
n-Octane	111-65-9	#N/A	<15000	<0.40	<2000	0.82	1.6

Table A-6  
1 of 3

**TABLE A-6**  
**Air Volatile Organic Compounds Analytical Data**  
7700 Earhart Boulevard Facility  
New Orleans, Louisiana

Sample Number Sample Depth (feet bgs) Location/Street Sample Date Time		Region 6 Ambient Air Screening Level Residential Use	OS-AIR-1 0 TO 4 Onsite 2/18/1999 8:07	OS-AIR-2 0 TO 4 Onsite 2/18/1999 13:03	EA-AIR-1 0 TO 4 Earhart Blvd 2/18/1999 14:24	EA-AIR-3 0 TO 4 Earhart Blvd 2/19/1999 10:55	EA-AIR-4 0 TO 4 Earhart Blvd 2/23/1999 12:30
Compound	CAS #	ppb (v/v)	ppb/(v/v)	ppb/(v/v)	ppb/(v/v)	ppb/(v/v)	ppb/(v/v)
trans-1,3-Dichloropropene	10061-02-6	#N/A	<15000	<0.40	<2000	<0.66	<0.80
1,1,2-Trichloroethane	79-00-5	0.02	<15000	<0.40	<2000	<0.66	<0.80
Tetrachloroethene	127-18-4	0.48	2200000	<0.40	<2000	2.4	1.2
Dibromochloromethane	124-48-1	115.42	<15000	<0.40	<2000	<0.66	<0.80
1,2-Dibromoethane (EDB)	106-93-4	0.00	<15000	<0.40	<2000	<0.66	<0.80
Chlorobenzene	108-90-7	4.46	<15000	<0.40	<2000	<0.66	50
Ethylbenzene	100-41-4	240.02	280000	<0.40	42000	3.6	1.9
m-Xylene & p-xylene	7816-60-0	165.53	1600000	<0.40	100000	14	8.4
Nonane	111-84-2	#N/A	18000	<0.40	<2000	<0.66	<0.80
o-Xylene	95-47-6	165.53	380000	<0.40	32000	5	3.5
Styrene	100-42-5	244.46	<15000	<0.40	<2000	<0.66	<0.80
Bromoform	75-25-2	0.17	<15000	<0.40	<2000	<0.66	<0.80
Cumene	98-82-8	80.30	<15000	<0.40	<2000	0.78	1.7
1,1,2,2-Tetrachloroethane	79-34-5	0.00	<15000	<0.40	<2000	<0.66	<0.80
n-Propylbenzene	103-65-1	7.30	<15000	<0.40	2800	<0.66	1.2
1,3,5-Trimethylbenzene	108-67-8	1.24	<15000	<0.40	4700	1.2	1.5
n-Decane	124-18-5	#N/A	<15000	<0.40	<2000	1.3	1.5
alpha-Methylstyrene	98-83-9	52.04	<15000	<0.40	<2000	0.98	1.9
1,2,4-Trimethylbenzene	95-63-6	1.24	<15000	<0.40	10000	3.5	5.1
1,3-Dichlorobenzene	541-73-1	163.54	<15000	<0.40	<2000	<0.66	<0.80
1,4-Dichlorobenzene	106-46-7	0.05	<15000	<0.40	<2000	<0.66	2.4
Benzyl chloride	100-44-7	0.01	<15000	<0.40	<2000	<0.66	<0.80
1,2-Dichlorobenzene	95-50-1	34.14	<15000	<0.40	<2000	<0.66	<0.80
n-Undecane	1120-21-4	#N/A	<15000	<0.40	<2000	0.89	1.3
n-Dodecane	112-40-3	#N/A	<15000	<0.40	<2000	<0.66	<0.80
1,2,4-Trichlorobenzene	120-82-1	27.59	<15000	<0.40	<2000	<0.66	<0.80
Hexachlorobutadiene	87-68-3	0.01	<15000	<0.40	<2000	<0.66	<0.80
Naphthalene	91-20-3	0.59	<15000	<0.40	<2000	<0.66	<0.80
Methanol	67-56-1	1372.18	<740000	<20	<98000	<33	<40
Ethyl ether	60-29-7	237.01	<37000	<0.99	<4900	<1.6	<2.0
Acetone	67-64-1	150.83	<370000	<9.9	<49000	130	140
Acrylonitrile	107-13-1	0.01	<37000	<0.99	<4900	<1.6	<2.0
Vinyl acetate	108-05-4	58.26	<37000	<0.99	<4900	<1.6	<2.0
2-Butanone (MEK)	78-93-3	347.62	<37000	<0.99	<4900	4.8	8.8
1-Butanol	71-36-3	118.51	<37000	<0.99	<4900	<1.6	<2.0

**TABLE A-6**  
**Air Volatile Organic Compounds Analytical Data**  
 7700 Earhart Boulevard Facility  
 New Orleans, Louisiana

Sample Number Sample Depth (feet bgs) Location/Street Sample Date Time Compound		Region 6 Ambient Air Screening Level Residential Use ppb (v/v)	OS-AIR-1 0 TO 4 Onsite 2/18/1999 8:07 ppb/(v/v)	OS-AIR-2 0 TO 4 Onsite 2/18/1999 13:03 ppb/(v/v)	EA-AIR-1 0 TO 4 Earhart Blvd 2/18/1999 14:24 ppb/(v/v)	EA-AIR-3 0 TO 4 Earhart Blvd 2/19/1999 10:55 ppb/(v/v)	EA-AIR-4 0 TO 4 Earhart Blvd 2/23/1999 12:30 ppb/(v/v)
4-Methyl-2-pentanone (MIBK)	108-10-1	20.01	<37000	<0.99	<4900	<1.6	<2.0
2-Hexanone	591-78-6	#N/A	<37000	<0.99	<4900	<1.6	<2.0
Methyl tert-butyl ether	1634-04-4	272.72	<37000	<0.99	<4900	<1.6	<2.0
Acrolein	107-02-8	0.01	<37000	<0.99	<4900	<1.6	<2.0
Acetonitrile	75-05-8	36.29	<74000	<2.0	<9800	<3.3	4.7

**APPENDIX B**

**ASBESTOS SURVEY**

## 1.0 INTRODUCTION

This appendix presents the results of the Asbestos Survey that was conducted at the facility on January 25, 1989. The survey was completed by Asbestos Environmental Controls, Inc.

The results of the survey were submitted to Golder Associates dated January 30, 1989. Their report is included in its entirety in this appendix. The report has not been edited or modified from their original submittal. Consequently, their text may contain slight inconsistencies between their text and the Remedial Action Plan. In particular, incorrect callouts of the past and present site owners and reference to the site buildings are possible. In all cases, the Remedial Action Plan text should take precedence.

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

CONSULTANTS

*Air Monitoring and Controlled Abatement of Asbestos  
and other Airborne Pollutants*

P.O. BOX 8777  
METAIRIE, LOUISIANA 70011  
432 N. ANTHONY ST., SUITE 203  
NEW ORLEANS, LOUISIANA 70119  
180 TOWNSHIP LINE RD.  
BELLE MEAD, N.J. 08502

TEL. 504-482-1719  
504-482-1717  
1-800-482-1717

GOLDER ASSOCIATES INC.	
REC'D	PN 883-3275-1041
CC:	FN
FEB - 1 1989	
ROUTE	

201-359-3200

January 30, 1989

Golder Assoc.  
3730 Chamblee Tucker Rd.  
Atlanta, Ga. 30341  
Attn: Ken Romero

Re: T H Agriculture & Nutrition New Orleans Facility  
Asbestos Survey

Dear Mr. Romero,

AEC, Inc. inspected the above named facility on January 25th, 1989 for asbestos containing building material. The results of the survey are enclosed with this report. Asbestos was detected in several materials, some floor tiles, the roofing felt, and pipe insulation were found to contain asbestos material. Current Louisiana regulations (LESHAPS) require that this material be removed before demolition can take place. Please refer to the report with accompanying maps which indicate the location in which samples were taken and in which positive samples are denoted with a (+) following the sample number.

If you should have any questions concerning this report please feel free to call on me at 1-800-482-1717.

Sincerely,

  
Michael J. Landry  
Operations Manager

THAG&NUT

GOLDER ASSOCIATES INC	
REC'D	PN 883-3075.104
KPR	FN
CC	FEB - 1 1989

**ASBESTOS SURVEY**  
**T H AGRICULTURE AND NUTRITION**  
**New Orleans, LA Facility**

Prepared for:  
**Golder Associates**  
New Orleans, Louisiana

**ASBESTOS ENVIRONMENTAL CONTROLS, INC.**  
New Orleans, Louisiana

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## INTRODUCTION

This report presents the results of the asbestos survey conducted at the T H Agriculture & Nutrition Facility located at 7700 Earhart Blvd. in New Orleans, La.

### Purpose and Scope

The purpose of this survey was to determine the location and to quantify amounts of any asbestos containing materials discovered in the survey.

### Report Organization

This report is organized into sections which discuss the field investigation, laboratory analyses, and quantity estimates of asbestos containing material detected during the inspection of the facility. A general review summarizing this information is presented at the end of the report. Supporting illustrations and documentation follow the text.

### Observations

Two areas in this complex were inspected for the purpose of detecting asbestos material in the facility. The office building and the mixing plant were both inspected at this location.

Areas of homogeneous building materials were mapped and bulk samples were collected. This particular facility had several areas where asbestos was discovered.

The survey located several types of asbestos containing building material.

Roofing felt at both sites in the complex were found to contain asbestos

9" White floor tiles in both buildings were found to contain asbestos

Small amounts of pipe insulation in the mixing plant were also found to contain asbestos

### Sampling

Sampling during the field investigation included the collection of 30 samples of suspect materials. See the maps for the location of samples that were collected.

Bulk samples of suspected asbestos-containing building materials were collected in a manner that minimized the potential for fiber release, using amended water and/or encapsulant. Personal protective equipment, such as half-face respirators and disposable gloves were used as necessary. After collection, samples were deposited in secure containers for transport to our laboratory, and the immediate sample vicinity was cleared and sealed with spray lacquer and/or tape.

### LABORATORY ANALYSIS

As described in the previous section, the survey included the collection of 30 bulk samples. The samples were transported to Environmental Analytical Consultants, Inc. for analysis.

### Bulk Sample Analyses

Bulk samples were analyzed by trained analysts using Polarized Light Microscopy, according to the U.S. EPA Interim Method for the Determination of Asbestos. Percentage compositions are based on volume percents from the approximate area composition as observed under the microscope. Environmental Analytical Consultants is a successful participant in the U.S. E.P.A. Interim Laboratory Accreditation Program, and our E.P.A. Laboratory number is 6286. Quality Assurance/Quality Controls for this project included independent re-analysis of 10% of the bulk samples.

The results of bulk sample analyses are given in Table 1, Bulk Sample Summary. Copies of the original laboratory reports are included as an Appendix. These results indicate the presence of asbestos in amounts greater than 1% in the following building material:

Vinyl Floor Tile: 9" White Tiles both sites

Thermal System Insulation: Pipe lagging, elbows, and other fittings located in the mixing plant.

Roofing, Felt: Roofing felt at both sites

Quantity Estimates

Preliminary quantity estimates of any asbestos containing materials were developed as part of our survey. These estimates are provided in Table 2. It should be noted that these are estimates only; unanticipated conditions could be discovered during demolition or renovation. Only areas that were accessible or were assumed to contain similar materials were used in developing quantities.

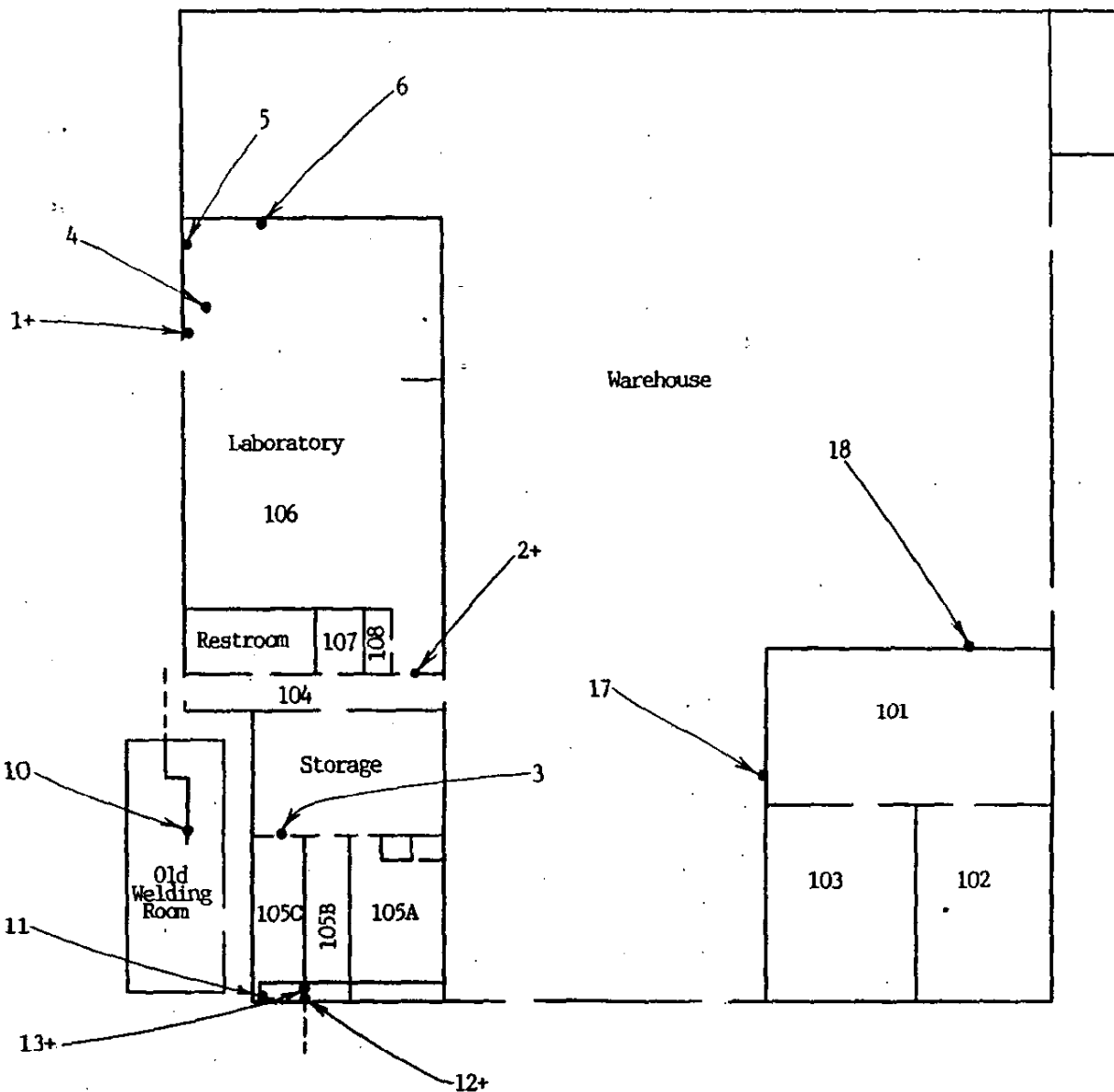
REPORT REVIEW

Our survey of the T H Agriculture Facility in New Orleans has indicated the presence of asbestos in several building materials.

MAPS

## MAP INDEX

<u>MAP #</u>	<u>MATERIAL</u>
1 of 2	Mixing Plant First Floor
2 of 2	Mixing Plant Second Floor and Roof
1 of 1	Office Building First Floor
2 of 2	Office Building Roof



MIXING PLANT 1ST FLOOR  
Scale: Not to scale

Project #883675.104

**SURVEY FOR ASBESTOS MATERIAL**

T - H - AGRICULTURE & NUTRITION

NEW ORLEANS, LA FACILITY

**ASBESTOS ENVIRONMENTAL CONTROLS**

432 N. ANTHONY ST., S. 203  
NEW ORLEANS, LA. 70119

TEL. 504-482-1719

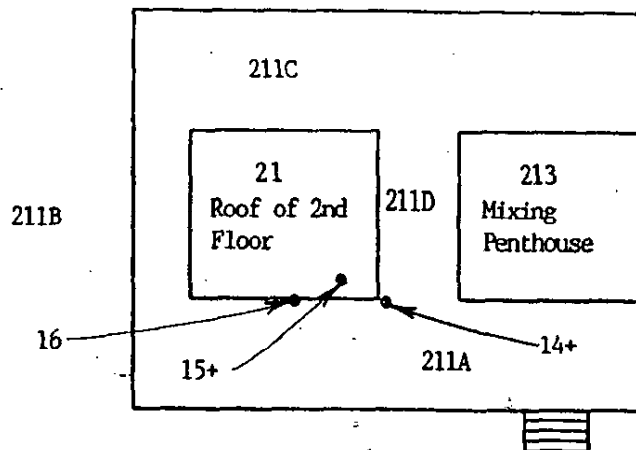
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1-800-482-1717

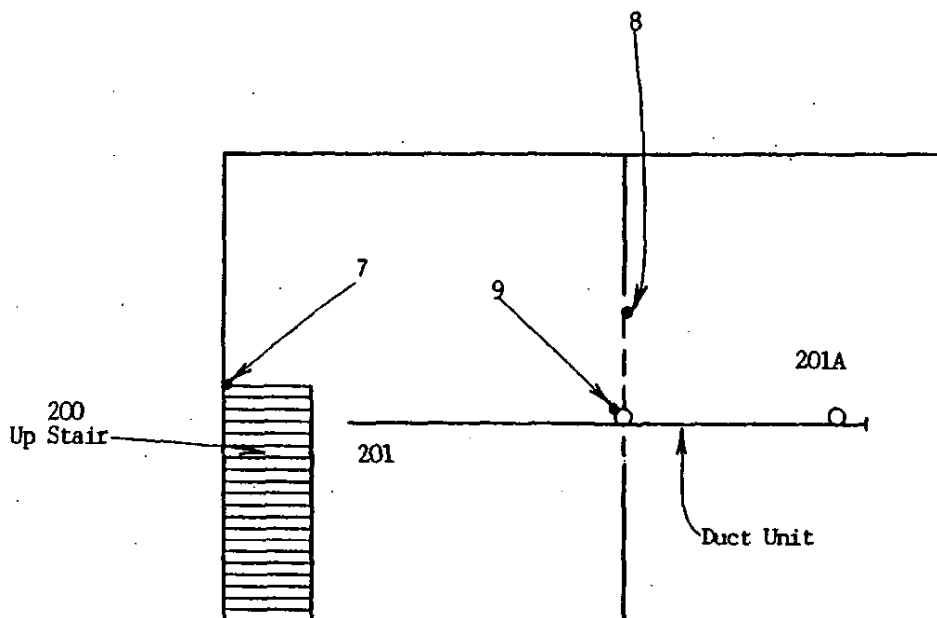
**DRAWING**

1 OF 2

1-30-89



MIXING PLANT ROOF  
Scale: Not to scale



MIXING PLANT 2ND FLOOR  
Scale: Not to scale

Project #883675.104

SURVEY FOR ASBESTOS MATERIAL

T - H - AGRICULTURE & NUTRITION

NEW ORLEANS, LA FACILITY

**ASBESTOS ENVIRONMENTAL CONTROLS**

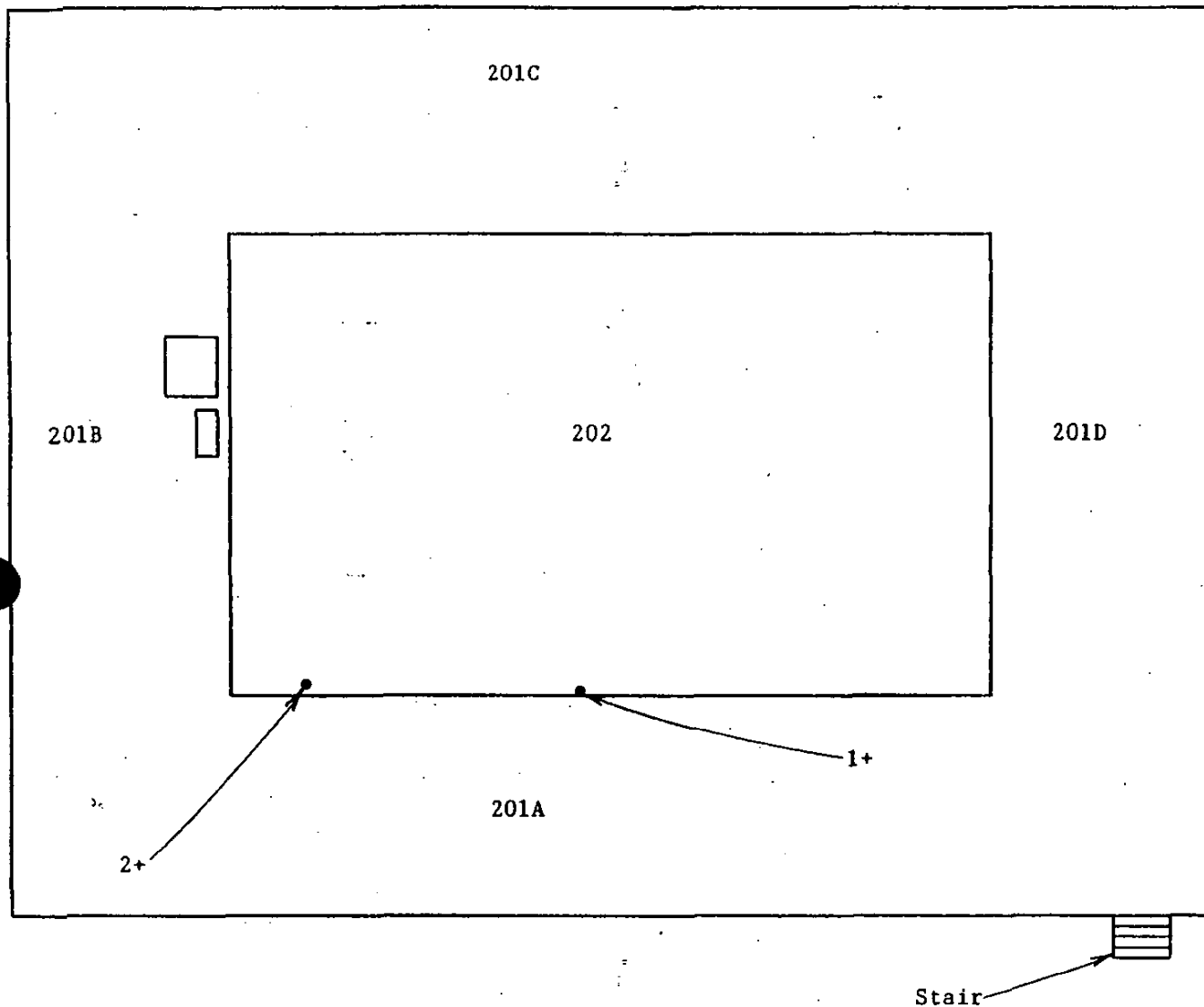
432 N. ANTHONY ST., S. 203  
NEW ORLEANS, LA. 70119

TEL. 504-482-1719  
504-482-1717  
1-800-482-1717

DRAWING

2 OF 2

1-27-89



OFFICE BUILDING ROOF  
Scale: Not to scale

Project #883675.104

**SURVEY FOR ASBESTOS MATERIAL**

**T - H - AGRICULTURE & NUTRITION**

**NEW ORLEANS, LA FACILITY**



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432 N. ANTHONY ST., S. 203  
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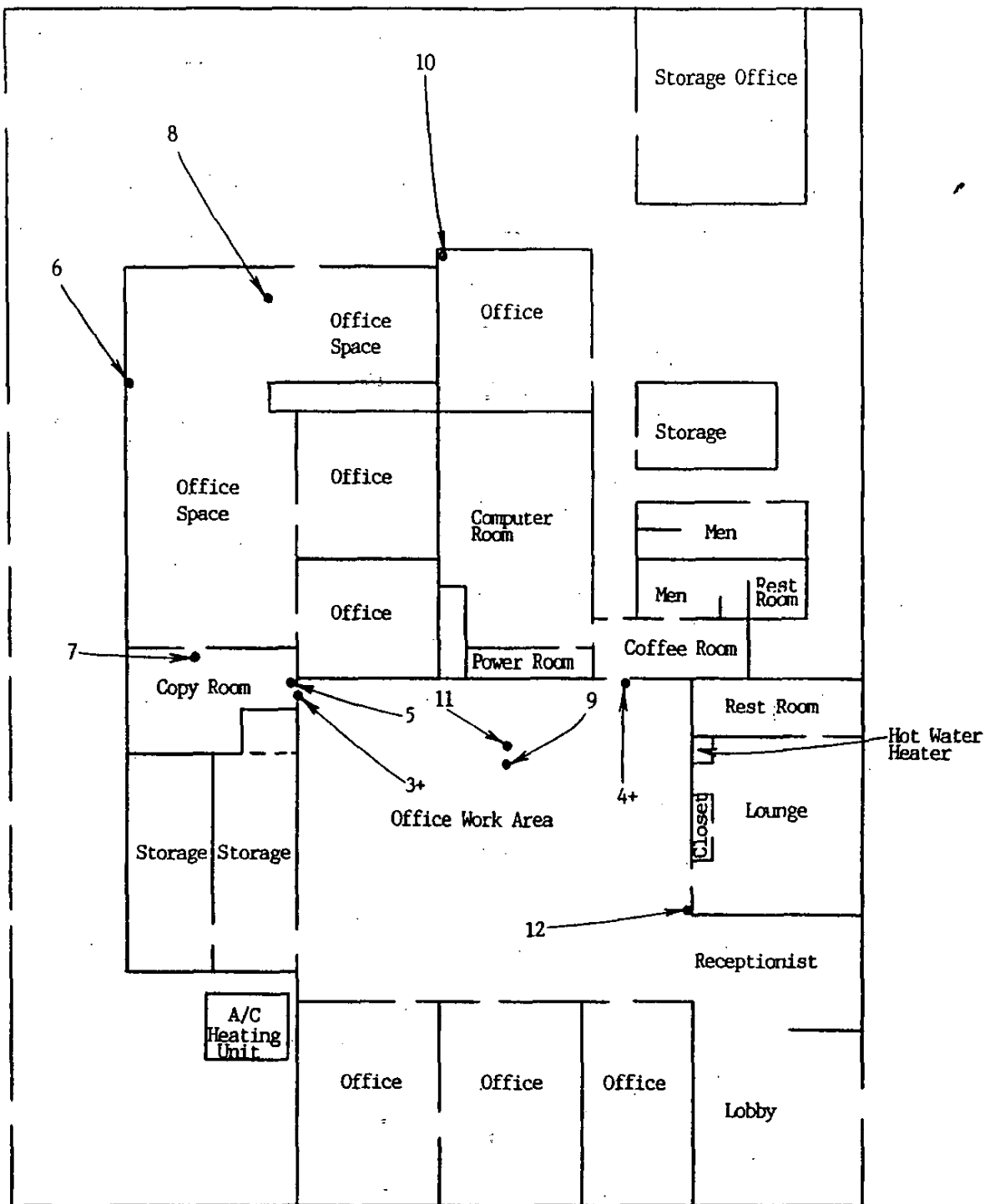
504-482-1717

1-800-482-1717

**DRAWING**

**1 OF 2**

**1-27-89**



OFFICE BUILDING  
Scale: Not to scale

Project #883675.104

SURVEY FOR ASBESTOS MATERIAL

T. - H- AGRICULTURE & NUTRITION

NEW ORLEANS, LA FACILITY

ASBESTOS ENVIRONMENTAL CONTROLS

432 N. ANTHONY ST., S. 203  
NEW ORLEANS, LA. 70119

TEL. 504-482-1719

504-482-1717

1-800-482-1717

DRAWING

2 OF 2

1-27-89

TABLE 1  
BULK SAMPLE SUMMARY

(OFFICE BUILDING)

<u>SAMPLE NO.</u>	<u>DESCRIPTION &amp; LOCATION</u>	<u>ASBESTOS CONTENT</u>
GA-1	Roofing felt, center of sub-roof HARF	1-5% chrysotile
GA-2	Roofing felt, left corner of top portion of the roof HARF	1-5% chrysotile
GA-3	9" white floor tile, middle of entrance door to copy room HAF-1 (Gray Layer)	5-15% chrysotile
	(Black Layer)	1-5% chrysotile
GA-4	9" white floor tile, right corner of entrance to coffee room next to water fountain HAF-2 (Gray Layer)	5-15% chrysotile
	(Black Layer)	1-5% chrysotile,
GA-5	12" white floor tile, right inside corner entering copy room HAF-2	Negative*
GA-6	12" white floor tile, right rear corner wall, below telephone jack below light HAF-2	Negative*
GA-7	9"x9" white ceiling tile, above door leading to office area near warehouse in the copy room HACT-1	None detected
GA-8	9"x9" white ceiling tile, 3' to the left of warehouse entrance HACT-1	None detected

GA-9	9"x9" white peg ceiling tile, 10' in front of 2nd office from lobby HACT-2	None detected
GA-10	9"x9" white peg ciling tile, 10' in front of 2nd office from lobby HACP-1	Negative*
GA-11	9"x9" white peg ciling tile, 10' in front of 2nd office from lobby HACP-1	Negative*
GA-12	9"x9" white peg ciling tile, right side of corner door at entrance to lounge HACT-2	None detected

BULK SAMPLE SUMMARY

(MIXING PLANT)

<u>SAMPLE NO.</u>	<u>DESCRIPTION &amp; LOCATION</u>	<u>ASBESTOS CONTENT</u>
GA-1	9" white floor tile, inside laboratory, to the right side below door HAF-1 : (Brown Layer)	15-30% chrysotile
	(Black Layer)	5-15% chrysotile
GA-2	9" white floor tile, right side of door at jamb entering laboratory HAF-1 (Brown Layer)	15-30% chrysotile
	(Black Layer)	5-15% chrysotile
GA-3	Peg ceiling tile 9", above center of men's room door	None detected
GA-4	Peg ceiling tile 9", near rear door of lab from existing hole in ceiling HAV-2	None detected
GA-5	Wall board, rear left corner to the right of rear exit door in lab HAWB-1 (Brown White Layer)	None detected
	(White Layer)	None detected
GA-6	Wall board, front wall, 10' to the left of fire blanket in the lab HAWB-1 (Brown White Layer)	None detected
	(White Layer)	None detected

GA-7	Wall board, 2nd floor to the left at top of stairs HAWB-1 (Brown Layer)	None detected
	(Beige Layer)	None detected
GA-8	Wall board, 4' to the left of duct on divider wall portion HAWB-1 (Brown Layer)	None detected
	(Beige Layer)	None detected
GA-9	6" fiberglass, center of room upstairs HADI	None detected
GA-10	3" fiberglass, right side of outside attached room HAPS-1	None detected
GA-11	2" fiberglass, back area behind men's rest room HAPS-2	None detected
GA-12	3" cementitious mud, back area behind men's rest room HAPS-1 (Gray Layer 1)	Negative*
	(Gray Layer 2)	Negative*
GA-13	3" cementitious mud, back area behind men's rest room HAPF-1 (Gray Layer 1)	15-30% chrysotile
	(Gray Layer 2)	1-5% chrysotile
GA-14	Roofing felt, right edge, near 2nd floor roof top HARF	5-15% chrysotile
GA-15	Roofing felt right front corner of 2nd floor roof (located on main roof) HARF	30-50% chrysotile

GA-16	Wall siding, front side of siding of the 2nd floor HAWS	None	detected
GA-17	Fiber board, left side wall, 6' from entrance HAFB	None	detected
GA-18	Fiber board, rear of shower room 10' from side entrance door HAFB	None	detected

\* Less than 1% Chrysotile

TABLE 2  
ASBESTOS-CONTAINING MATERIALS

(OFFICE BUILDING)

<u>SAMPLE #</u>	<u>MATERIAL DESCRIPTION &amp; ASBESTOS CONTENT</u>	<u>QUANTITY</u>
GA-1	Roofing felt, center of sub-roof HARF	
GA-2	Roofing felt, left corner of top portion of the roof HARF	
	TOTAL	15,000 sq. ft.
GA-3	9" white floor tile, middle of entrance door to copy room HAF-1	
GA-4	9" white floor tile, right corner of entrance to coffee room next to water fountain HAF-2	
	TOTAL	1,400 sq. ft.

TABLE 2

ASBESTOS-CONTAINING MATERIALS

(MIXING PLANT)

<u>SAMPLE #</u>	<u>MATERIAL DESCRIPTION &amp; ASBESTOS CONTENT</u>	<u>QUANTITY</u>
GA-1	9" white floor tile, inside laboratory, to the right side below door HAF-1	
GA-2	9" white floor tile, right side of door at jamb entering laboratory HAF-1	
	TOTAL	1,333 sq. ft.
GA-13	3" cementitious mud, back area behind men's rest room HAPF-1	
GA-14	Roofing felt, right edge, near 2nd floor roof top HARF	
GA-15	Roofing felt right front corner of 2nd floor roof (located on main roof) HARF	
	TOTAL	10,000 sq. ft.

APPENDIX - DOCUMENTATION

## CHAIN OF CUSTODY

FACILITY NAME: GOLDER ASSOCIATES

OFFICE BUILDING

SITE CODE

AGENCY NO.

ITEM NO.

ADDRESS: 7700 EARTHART BLVD. N.O., LA.

DATE: 1-24-89

[illegible]

DATE	RELEASED BY	DATE	ACCEPTED BY	COMMENTS
8-89	K. Ballard			

OFFICE B.

**Site Code**

Item 4

in #	Ceiling	Walls	T51	Misc	Flo
1	CT2	—	—	—	F1
2	CT2	—	—	—	F1
3	CT2	—	—	—	F1
4	CT2	—	—	—	F1
5	CT2	—	—	—	F2
5A	CT2	—	—	—	F2
5B	—	CPI	—	—	F2
5C	CT2	—	—	—	F2
6	CT2	CPI	—	—	F1
6A	—	CT1	—	—	F2
7	—	—	—	—	—
7A	—	—	—	—	—
8	—	CT1	—	—	F2
9	—	CT1	—	—	F2
9B	—	CT1	—	—	F2
10	CT2	—	—	—	—
9A	—	—	—	—	—
10	—	CT1	—	—	F2
11	CT2	—	—	—	F1
12	CT2	—	—	—	F1
13	—	—	—	—	—
14	—	—	—	—	—
15	—	—	—	—	F3
16	—	—	—	—	—
16A	—	—	—	—	—
16B	—	—	—	—	—
16C	—	—	—	—	—
16D	—	—	—	—	—
21A	—	—	—	RF	—
21B	—	—	—	RF	—
1C	—	—	—	RF	—
old	—	—	—	RF	—
22	—	—	—	RF	—

# ENVIRONMENTAL ANALYTICAL CONSULTANTS

## ASBESTOS IDENTIFICATION SHEET

CUSTOMER

Collier Process & Log

Office Bldg

JOB NO.

AF 689015

SAMPLE I.D.	COLOR	DESC.	HOMOG.	RESULT		ASBESTOS			SYNTH	NON-ASBESTOS			COMMENTS
				N	P	CHRY	AMOS	CROC		F/G	CELL	NON-FIB	
1	GR 46		Y	+		1-5					30-50	balance	RF
2	GR 46		Y	+		1-5					15-30	"	RF
3	GR 8		Y	+		5-15					1-5	"	F1
	GR 4		Y	+		1-5					1-5	"	
4	GR 8		Y	+		5-15					1-5	"	F1
	GR 4		Y	+		1-5					1-5	"	
5	GR 8		Y	-		<1*					1-5	"	* F2
6	GR 8		Y	-		<1*					1-5	"	* F2
7	GR 161		N	-						30-50	30-50	"	CT1
8	GR 161		N	-						30-50	30-50	"	CT1
9	GR 161		N	-							275	"	CT2 QCMC
10	GR 321		N	-		<1*					1-5	"	* CPI
	GR 321		N	-									TYPED DL

ANALYST

RF

DATE

1-25-89

1/25/89

# ASBESTOS IDENTIFICATION SHEET

**CUSTOMER**

**JOB NO.**

Coalchar Associates

Office Bldg

[illegible]

ANALYST

DATE:

(-2.5)

ASBESTOS ENVIRONMENTAL CONTROLS, INC.

BULK ANALYSES - GOLDER ASSOCIATES  
(OFFICE BUILDING)

DATE	SAMPLE NO.	RESULTS	ANALYST
1/24/89	GA-1 Roofing felt, center of the sub-roof HAF	Positive, 1-5% chrysotile, 30-50% cellulose, balance particulate	AF
1/24/89	GA-2 Roofing felt, left corner of top portion of the roof HAF	Positive, 1-5% chrysotile, 15-30% cellulose, balance particulate	AF
1/24/89	GA-3 9" white floor tile, middle of entrance door to copy room HAF-1 (Gray Layer)	Positive, 5-15% chrysotile, 1-5% cellulose, balance particulate	AF
	(Black Layer)	Positive, 1-5% chrysotile, 1-5% cellulose, balance particulate	AF
1/24/89	GA-4 9" white floor tile, right corner of entrance to coffee room next to water fountain HAF-2 (Gray Layer)	Positive, 5-15% chrysotile, 1-5% cellulose, balance particulate	AF
	(Black Layer)	Positive, 1-5% chrysotile, 1-5% cellulose, balance particulate	AF
1/24/89	GA-5 12" white floor tile, right inside corner entering copy room HAF-2	Negative, <1% chrysotile, 1-5% cellulose, balance particulate *	AF
1/24/89	GA-6 12" white floor tile, right rear corner wall, below telephone jack below light HAF-2	Negative, <1% chrysotile, 1-5% cellulose, balance particulate *	AF

ASBESTOS ENVIRONMENTAL CONTROLS, INC.

BULK ANALYSES - GOLDER ASSOCIATES  
(OFFICE BUILDING)

DATE	SAMPLE NO.	RESULTS	ANALYST
1/24/89	GA-7 9"x9" white ceiling tile, above door leading to office area near warehouse in the copy room HACT-1	Negative, 30-50% fiberglass, 30-50% cellulose, balance particulate	AF
1/24/89	GA-8 9"x9" white ceiling tile, 3' to the left of warehouse entrance HACT-1	Negative, 30-50% fiberglass, 30-50% cellulose, balance particulate	AF
1/24/89	GA-9"x9" white peg ceiling tile, 10' in front of 2nd office from lobby HACT-2	Negative, >75% cellulose, balance particulate	AF
1/24/89	GA-10 9"x9" white peg ceiling tile, 10' in front of 2nd office from lobby HACP-1	Negative, <1% chrysotile, 1-5% cellulose, balance particulate *	AF
1/24/89	GA-11 9"x9" white peg ceiling tile, 10' in front of 2nd office from lobby HACP-1	Negative, <1% chrysotile, 1-5% cellulose, balance particulate *	AF
1/24/89	GA-12 9"x9" white peg ceiling tile, right side of corner door at entrance to lounge HACT-2	Negative, >75% cellulose, balance particulate	AF

AEC89015

## CHAIN OF CUSTODY

FACILITY NAME: GOLDER ASSOCIATES

## MIXING PLANT

SITE CODE

AGENCY NO.

ITEM NO.

ADDRESS: 7700 EARNHART BLVD. N.O., LA.

DATE: January 24, 1989

SAMPLE CONTAINER NO.	HOMOGENOUS AREA NO.	MATERIAL CODE DESCRIPTION	AREA SIZE	COMMENTS
1 +	F1	9'-W-FLOOR TILE	1,333 Sq. Ft.	INSIDE LABORATORY, TO THE RIGHT SIDE BELOW REAR DOOR.
2 +	F1	" - " - "	" " "	RIGHT SIDE OF DOOR AT DOOR JAMB ENTERING LABORATORY.
3	CT2	PEG-CT-9'		ABOVE CENTER OF MEN'S ROOM DOOR.
4	CT2	PEG-CT-9'		NEAR REAR DOOR OF LAB. FROM EXISTING HOLE IN CEILING.
5	WB1	WB	2060 Sq. Ft.	REAR LEFT CORNER TO THE RIGHT OF REAR EXIT DOOR IN THE LAB.
6	"	"	"	FRONT WALL, 10' TO THE LEFT OF FIRE BLANKET IN THE LAB.
7	"	"	"	2nd. FLOOR TO THE LEFT, AT TOP OF STAIRS.
8	"	"	"	4' TO THE LEFT OF DUCT ON DIVIDER WALL PORTION.
9	DT	DT-6'-FG	50 LN. FT.	CENTER OF ROOM, UPSTAIRS.
10	PS1	FG-3'	10 LN. FT.	RIGHT SIDE OF OUTSIDE ATTACHED RM.
11	PS2	2'	50 LN. FT.	BACK AREA BEHIND MEN'S RESTROOM.
12 +	PS1	CM-3'	50 LN. FT.	" " " " "
13 +	PFI	CM-3'	50 LN. FT.	" " " " "
14 +	RF	ROOFING FELT	10,000 Sq. Ft.	RIGHT EDGE, NEAR 2nd. FLOOR ROOF TOP.
15 +	RF	" " "	" " "	RIGHT FRONT CORNER OF 2nd. FLOOR ROOF (LOCATED ON MAIN ROOF).
16	WS	WALL SIDING	520 Sq. Ft.	FRONT SIDE OF SIDING OF THE RM. FIG.
17	FB	FIBER BOARD	6,000 Sq. Ft.	LEFT SIDE WALL, 6" FROM ENTRANCE
18	"	" "	6,000 Sq. Ft.	REAR OF SHOWER ROOM, 10" FROM SIDE ENTRANCE DOOR.

DATE	RELEASED BY	DATE	ACCEPTED BY	COMMENTS
89	K. Ballard			

## MIXING PLANT.

**Item :**

[illegible]

CUSTOMER

Golden Proccities

Mixing Plant

JOB NO.

AE108515

SAMPLE I.D.	COLOR	DESC.	HOMOG.	RESULT			ASBESTOS			OTHER	SYNTH	NON-ASBESTOS			COMMENTS
				N	P		CHRY	AMOS	CROC			F/G	CELL	NON-FIB	
1	BN 8		Y	+			15-30						1-5	Subsance	F1
	DK 4		Y	+			5-15						1-5	"	
2	BN 8		Y	+			15-30						1-5	4	F1
	DK 4		Y	+			5-15						1-5	4	
3	BN 16		N	-									275	"	CT2
	WH 10												275	4	CT2
4	BN 16		N	-									275	4	WB1
	WH 10											4	1-5	4	
5	BN 16		N	-									275	"	WB1
	WH 10											4	1-5	"	
6	BN 16		N	-									275	"	WB1
	WH 10											4	1-5	"	
7	BN 16		Y	-									275	"	WB1
	DK 3.8		Y	-								4	1-5	4	
8	BN 16		Y	-									275	4	WB1
	DK 3.8		Y	-								4	1-5	"	

ANALYST

171

DATE

1-25

ANALYST

Typed D.L.  
1/25/85

# Golden Moments

**JOB NO.**

## Marketing Plan

ANALYST

72

DATE \_\_\_\_\_

1-25-89

Typed Dr.  
1/25/88

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

## BULK ANALYSES - GOLDER ASSOCIATES (MIXING PLANT)

DATE	SAMPLE NO. AND LOCATION	RESULTS	ANALYS
11/24/89	GA-1 9" white floor tile, inside laboratory, to the right side below door HAF-1 (Brown Layer)	Positive, 15-30% chrysotile, 1-5% cellulose, balance particulate	AF
	(Black Layer)	Positive, 5-15% chrysotile, 1-5% cellulose, balance particulate	AF
11/25/89	GA-2 9" white floor tile, right side of door at jamb entering laboratory HAF-1 (Brown Layer)	Positive, 15-30% chrysotile, 1-5% cellulose, balance particulate	AF
	(Black Layer)	Positive, 5-15% chrysotile, 1-5% cellulose, balance particulate	AF
11/25/89	GA-3 Peg ceiling tile 9", above center above center of men's room door	Negative, >75% cellulose, balance particulate	AF
11/25/89	GA-4 Peg ceiling tile 9", near rear door of lab from existing hole in ceiling HAC-2	Negative, >75% cellulose, balance particulate	AF

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

## BULK ANALYSES - GOLDER ASSOCIATES (MIXING PLANT)

DATE	SAMPLE NO. AND LOCATION	RESULTS	ANALYST
11/25/89	GA-5 Wall board, rear left corner to the right of rear exit door in lab HAWB-1 (Brown White Layer)  (White Layer)	Negative, >75% cellulose, balance particulate  Negative, <1% fiberglass, 1-5% cellulose, balance particulate	AF  AF
11/25/89	GA-6 Wall board, front wall, 10' to the left of fire blanket in the lab HAWB-1 (Brown White Layer)  (White Layer)	Negative, >75% cellulose, balance particulate  Negative, <1% fiberglass, 1-5% cellulose, balance particulate	AF  AF
11/25/89	GA-7 Wall board, 2nd floor to the left, at top of stairs HAWB-1 (Brown Layer)  (Beige Layer)	Negative, >75% cellulose, balance particulate  Negative, <1% fiberglass, 1-5% cellulose, balance particulate	AF  AF

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

## BULK ANALYSES - GOLDER ASSOCIATES (MIXING PLANT)

DATE	SAMPLE NO. AND LOCATION	RESULTS	ANALYST
11/25/89	GA-8 Wall board, 4' to the left of duct on divider wall portion HAWB-1 (Brown Layer)	Negative, >75% cellulose, balance particulate	AF
	(Beige Layer)		
11/25/89	GA-9 6" fiberglass, center of room, upstairs HADI	Negative, <1% fiberglass, 1-5% cellulose, balance particulate	AF
11/25/89	GA-10 3" fiberglass, right side of outside attached room HAPS-1	Negative, 1-5% fiberglass, 50-75% cellulose, balance particulate	AF
11/25/89	GA-11 2" fiberglass, back area behind men's restroom HAPS-2	Negative, 30-50% fiberglass, 15-30% cellulose, balance particulate	AF
11/25/89	GA-12 3" cementitious mud, back area behind men's restroom HAPS-1 (Gray Layer 1)	Negative, 50-75% cellulose, balance particulate	AF
	(Gray Layer 2)		
		Positive, <1% chrysotile, 50-75% amosite, 1-5% cellulose, balance particulate *	AF
		Positive, 1-5% amosite, >75% cellulose, balance particulate	AF

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

## BULK ANALYSES - GOLDER ASSOCIATES (MIXING PLANT)

DATE	SAMPLE NO. AND LOCATION	RESULTS	ANALYST
11/25/89	GA-13 3" cementitious mud, back area behind men's restroom HAPF-1 (Gray Layer 1)	Positive, 15-30% chrysotile, 30-50% fiberglass, 1-5% cellulose, balance particulate	AF
	(Gray Layer 2)		
11/25/89	GA-14 Roofing felt, right edge, near 2nd floor roof top HAFB	Positive, 1-5% chrysotile, >75% cellulose, balance particulate	AF
11/25/89	GA-15 Roofing felt right front corner of 2nd floor roof (located on main roof) HAFB	Positive, 5-15% chrysotile, 1-5% cellulose, balance particulate	AF
11/25/89	GA-16 Wall siding, front side of siding of the 2nd floor HAWS	Positive, 30-50% chrysotile, 1-5% cellulose, balance particulate	AF
11/25/89	GA-17 Fiber board, left side wall, 6' from entrance HAFB	Negative, 30-50% fiberglass, 1-5% cellulose, balance particulate	AF
11/25/89	GA-18 Fiber board, rear of shower room 10' from side entrance door HAFB	Negative, >75% cellulose, balance particulate	AF

AEC89015

APPENDIX B  
ASBESTOS REMOVAL PLAN

---

## 1.0 INTRODUCTION

This appendix presents the Asbestos Removal Plan that was prepared by Asbestos Environmental Controls, Inc.

The plan was submitted to Golder Associates dated February 15, 1989. Their plan is included in its entirety in this appendix. The plan has not been edited or modified from their original submittal. Upon selection of the remediation contractor, any necessary modifications to the plan will be submitted to the DEQ. It is possible that slight inconsistencies between their text and the Remedial Action Plan may exist. In particular, incorrect callouts of the past and present site owners and reference to the site building are possible. In all cases, the Remedial Action Plan text should take precedence.

# ASBESTOS ENVIRONMENTAL CONTROLS, INC.

CONSULTANTS

*Air Monitoring and Building Surveys of Asbestos  
and other Airborne Pollutants*

432 N. ANTHONY ST., SUITE 203  
NEW ORLEANS, LA 70119

2909 DIVISION ST., SUITE C  
METAIRIE, LA 70002

224 S. MICHIGAN AVE, 5TH FLOOR  
CHICAGO, ILL. 60604

5324 TORRANCE BLVD.  
TORRANCE, CALIF. 90503

3600 LIME ST., SUITE 123  
RIVERSIDE, CALIF. 92501

NATIONAL: 1-800-482-1717  
NEW ORLEANS: 504-482-1719  
METAIRIE: 504-885-5711  
CHICAGO, ILL.: 312-427-7773  
TORRANCE, CAL.: 213-543-5458  
RIVERSIDE, CAL.: 714-684-9383

February 15, 1989

Mr. Ken Romero  
Golder Associates  
3730 Chamblee Tucker Road  
Atlanta, GA 30341


RE: SPECIFICATIONS FOR ASBESTOS REMOVAL  
AT THE T H AGRICULTURE AND NUTRITION CENTER

Dear Ken:

Enclosed please find the specifications you requested for  
the T H Agriculture and Nutrition Center.

Please review and should you have any questions or changes,  
please do not hesitate to contact me.

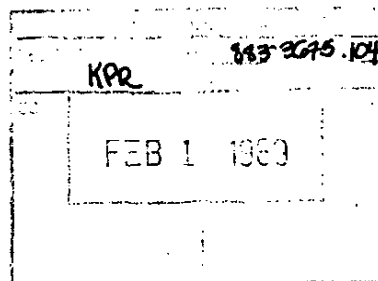
Sincerely,

  
Mike Landry  
Operations Manager

ML/klm

Enclosure

891039.klm



ASBESTOS REMOVAL  
T H Agriculture & Nutrition Center  
7700 Earhart Blvd.  
New Orleans, La.

GENERAL CONDITIONS

Removal of all asbestos containing building material in the specified areas of the T H Agriculture & Nutrition Center (THANC).

- A. The Asbestos Contractor shall remove all asbestos containing building material as detailed below. The majority of the work will involve removal of non-friable asbestos material (Vinyl Asbestos Floor Tile and Roofing Felt). There will also be some removal of thermal system insulation which will utilize current glovebag techniques.
- B. All of the asbestos removal and cleanup work shall be performed according to State of Louisiana Department of Environmental Quality and Federal E.P.A. and O.S.H.A. regulations.
- C. The Asbestos Abatement Contractor shall be responsible for removing all of the waste debris. It shall be hauled away to a Federal and State approved hazardous waste disposal dumpsite prior to final payment. All dump manifests and invoices shall be submitted to the consultant upon completion of this project.

The work will be listed below with a brief description of the area and the work that needs to be accomplished in that area. The asbestos removal will be bid as a total price to remove all acbm from the listed areas in order to complete demolition of the structures. The asbestos contractor shall be responsible for removal of all asbestos containing building materials from the facility. Most of the work can be accomplished without the use of containment areas, since the material is non-friable in nature, removal will be accomplished using wet techniques in order to minimize any fiber release and all workers will be required to wear respiratory protection devices. All thermal system insulation will be removed utilizing current glovebag techniques.

#### MIXING PLANT

1. Remove white 9" vinyl asbestos floor tile located in the laboratory approximately 1,333 sq. ft. of material.
2. Remove roofing felt from the roof of the building approximately 10,000 sq.ft. of material.
3. Remove all asbestos containing thermal system insulation from back area behind the mens bathroom approximately 50 ln. ft..

#### OFFICE BUILDING & WAREHOUSE

1. Remove white 9" vinyl asbestos floor tile located in the office building area approximately 1,500 sq. ft.
2. Remove roofing felt from the roof of the building approximately 15,000 sq.ft..

NOTE: There is a 6 " pipe line which has paper insulation on it which was not accessible to the inspector, it has approximately 2500 ln. ft. of insulation and is about 40' high in the air. This material must be sampled before removal in order to verify the nature of the insulation.

ASBESTOS REMOVAL  
T H Nutrition & Agriculture Center  
7700 Earhart Blvd.  
New Orleans, LA.

TABLE OF CONTENTS

DIVISION 0 - CONTRACT REQUIREMENTS

Form of Agreement  
Bond Forms  
Previous Participation Forms  
Special Conditions

DIVISION 1 - GENERAL REQUIREMENTS

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## DIVISION 1 - GENERAL REQUIREMENTS

### SECTION 10010 SUMMARY OF THE WORK

#### 1.0 GENERAL

It is the declared and acknowledged intention and meaning of these contract documents to generally remove all asbestos containing materials at the T H Agriculture & Nutrition Center.

#### 1.1 WORK INCLUDED

The work under this base bid of the contract shall include all work indicated or specified within the contract documents and include but is not limited to the following:

Asbestos removal of all listed areas in the THANC.

- A. The Asbestos Contractor shall remove all asbestos containing building material as detailed below. The majority of the work will involve removal of non-friable asbestos material (Vinyl Asbestos Floor Tile and Roofing Felt). There will also be some removal of thermal system insulation which will utilize current glovebag techniques.
- B. All of the asbestos removal and cleanup work shall be performed according to State of Louisiana Department of Environmental Quality and Federal E.P.A. and O.S.H.A. regulations.
- C. The Asbestos Abatement Contractor shall be responsible for removing all of the waste debris. It shall be hauled away to a Federal and or State approved waste disposal dumpsite prior to final payment. All dump manifests and invoices shall be submitted to the consultant upon completion of this project.

#### 1.2 SEQUENCE OF WORK

- A. The contractor must conduct all his operations to assure the safety of the other workers in the building area at all times and to interfere as little as possible with the other construction activities if present. This will include suitable barricading, storage and staging areas, scheduling of materials delivery.
- B. It is especially important that the contractor

maintain all exits, free and clear of any obstructions at all times.

### 1.3 SCHEDULING OF THE WORK

#### A. SCHEDULE TO BE FOLLOWED

1. Asbestos Abatement Contractor shall meet with the Project Manager, and building owner's representative to arrange a schedule for this asbestos abatement project.
2. The Asbestos Abatement Contractor must set up all equipment and materials prior to removal of the asbestos containing materials.
3. In order that the asbestos abatement contractor may perform such asbestos removal as required, the Asbestos Abatement Consultant, shall allow at any given time the abatement contractor to occupy as many areas as they deem acceptable. Upon completion and approval of each work area, the abatement contractor shall move to another area. The asbestos abatement contractor shall consult with the consultant and the Owner's representative on the scheduling of the initial and successive areas. Any damages outside of this contract caused by the asbestos abatement contractor shall be made good with no additional cost to the owner.
4. The asbestos abatement contractor will follow all Federal E.P.A., O.S.H.A., and State of Louisiana D.E.Q. regulations in performing this asbestos removal project.
5. After all of the asbestos containing materials have been removed and wrapped in double lined plastic containment bags, they will be trucked to an E.P.A. approved hazardous waste disposal dump. Asbestos Abatement Contractor shall be responsible for cleaning up and removal of any and all asbestos fibers found in any areas designated as removal or cleanup areas.
6. Prior to reestablishment of the work areas and release of these areas to the building owner a final visual inspection and final clearance air monitoring will be performed. The final clean air requirements for returning the buildings back to the building owner have been established in section 3.11.

#### 1.4 ASBESTOS PROJECT MANAGER

- A. The Asbestos Project Manager shall be the designated representative of the Owner. Also known as the Competent Person. This person could be an administrator, industrial hygienist, environmental chemist, engineer, technician, or other competent person possessing the necessary qualifications. In this Project the Asbestos Project Manager shall be denoted by the building owners representative.
- B. The Asbestos Project Manager shall be able to demonstrate special education, training skills knowledge and experience satisfactory to the Building Owner to indicate the ability to carryout the following activities as required:
  - 1. Assist in decision making regarding selection of procedures.
  - 2. Supervision of all abatement activities.
  - 3. Tour work area with the Contractor and agree on pre-abatement conditions of the work area.
  - 4. Inspect and sign off of barriers and decontamination enclosure systems.
  - 5. Observe activities at all times during the course of abatement.
  - 6. Meet with the Asbestos Abatement Contractor daily to review work progress and solve problems or adjust procedures as appropriate.
  - 7. Perform all bulk laboratory analyses of suspect materials and air sampling analysis during abatement and clearance inspections for the Building Owner.
  - 8. Report on abatement to the Building Owner.
  - 9. Request, review and maintain Asbestos Abatement Contractor submittals.

10. Review the training and/or respirator fit testing program for the Asbestos Abatement Contractors personnel at the job site.
- C. The Asbestos Project Manager shall have the authority to stop any job activities if they are not being performed in accordance with applicable regulations or guidelines or the requirements of this specification. These will be reported to the Owner with description of activity, reason for stopping and alternatives for correcting the problems during this asbestos abatement project.
- D. The results of air sampling will be made available to the owner, and the asbestos abatement contractor within a period of 24 hours. Any subsequent regulations or guidelines not herein specified shall be reviewed for priority and shall be used as called for on this project.
- E. If, at any time, any air sample outside the chambered area or work area rises above the dangerous level (0.1 f/cc, action level) as outlined by the EPA, the work shall be stopped immediately, air cleaning and surface cleaning procedures will be implemented immediately. If the fiber levels in the work area exceed the action level (0.1 f/cc), as outlined by EPA, in the work area three times, PAPR air respirators shall be required for all workers for the duration of the project.

## 2.0 PRODUCTS AND SUBMITTALS

### A. SUBSTITUTION OF MATERIALS

1. When a specific manufacturer, trade name or material is specified or indicated, it is to establish a standard of quality and shall not be construed as limiting competition. If the Asbestos Abatement Contractor desires to use material other than that specified, he shall request approval of such substitutions, in writing, to the asbestos abatement consultant. Request for substitutions shall be in the hands of the Consultant no later than seven (7) days prior to the stated date of bidding as identified in the Contract Documents. Materials found acceptable for bidding will be approved by the consultant. Approvals for changes in bid specifications will be granted only by addendum.

2. Submittals for approval of substitute materials shall contain sufficient information, descriptive brochures, drawings, samples, or other data as is necessary to provide direct comparison to the specified material. Each submittal shall be well marked and identified as to type and kind of items being submitted for approval. It is the sole responsibility of the Bidder to submit descriptive and technical information so that the Consultant can make proper appraisal. Lack of proper information will be sufficient cause for rejection.
3. When other manufacturer's equipment are approved the quality must meet the Consultant requirements. However, it shall be the responsibility of the Asbestos Abatement Contractor to assure that the equipment will fit the space allocated and that the weight of the equipment is not excessive.

### 3.0 EXECUTION

#### A. SCAFFOLD, STAGING, PROTECTION, ETC.

The work under each Section of this Specification shall include providing, installing, maintaining of all scaffold, staging, trestles, and planking necessary for the work required under each section of the specifications. The Asbestos Abatement Contractor will conform with all applicable laws and ordinances, and maintenance of same, so as not to interfere with or obstruct the work of other trades. Additionally, the work under each section of the specifications shall include: providing all forms of protection as necessary to preserve the work of other trades free from damage. These provisions shall be considered as though repeated under each separate Section of these specifications.

#### B. SAFETY REQUIREMENTS

These Construction Documents, and the asbestos removal hereby contemplated are to be governed, at all times, by applicable provisions of the Federal, State and Parish Laws, including, but not limited to, the latest amendments of the following:

- 1) Williams-Steiger Occupational Safety and Health Act of 1970, Public Law 91-596.
- 2) Part 1910 - Occupational Safety and Health Standards, Chapter XVII of Title 29, Code of Federal Regulations.

- 3) Part 1518 - Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.

### 3.1 TRAINING SUPPORT ACTIVITIES AND PERSONNEL

- A. Training shall be provided by the Contractor to all employees or agents who may be required to disturb asbestos containing or asbestos contaminated materials for abatement and auxiliary purpose and to all supervisory personnel who may be involved in planning, execution or inspection of abatement projects.
- B. Training shall provide, at a minimum, information on the following topics.
1. The health hazards of asbestos including the nature of various asbestos related diseases, routes of exposure, known dose-response relationships, the synergistic relationship between asbestos exposure and cigarette smoking, latency periods for disease and health basis for standards.
  2. The physical characteristics of asbestos including fiber size, aerodynamic properties, physical appearance and uses.
  3. Employee personal protective equipment including the types and characteristics of respirator classes, limitations of respirators, proper selection, inspection, donning, use, maintenance and storage of respirators, field testing the face-piece-to-face seal (positive and negative pressure fitting tests), qualitative and quantitative fit testing procedures, variations between laboratory and field fit factors, factors that affect respirator fit (e.g. facial hair), selection and use of disposable clothing, use and handling of laundry clothing, non-skid shoes, gloves, eye protection and hard hats.

4. Medical monitoring requirements for workers including required and recommended tests, reasons for medical monitoring and employee access to records.
5. Air monitoring procedures and requirements for workers including description of equipment and procedures, reasons for monitoring, types of samples and current standards with recommended changes.
6. Work practices for asbestos abatement including purpose, proper construction and maintenance of airtight plastic barriers, job set-up of airlock, worker decontamination systems and waste transfer airlock. Posting of warning signs, engineering controls electrical and ventilation system lockout, proper working techniques, waste clean-up, storage and disposal procedures.
7. Personal hygiene including entry and exit procedures for the work area, use of showers and prohibition of eating, drinking, smoking and chewing in the work area.
8. Special safety hazards that may be encountered including electrical hazards, air contaminants (CO, wetting agents, encapsulant, materials from Owner's operation), fire and explosion hazards, scaffold and ladder hazards, slippery surfaces, confined spaces, heat stress and noise.

### 3.2 INTERPRETATION OF SPECIFICATIONS

In general, provisions of the specifications take precedence over notes on the drawings; addenda or bulletins to specifications take precedence over original specification or earlier addenda; dimensional figures take precedence over scaled measurements; large scale drawings and details take precedence over those of smaller scale; drawings of the latest date take precedence over earlier ones. Work indicated or required (but not expressly noted, detailed, or specified) shall be made the same as similar or corresponding elements which are fully noted, detailed or specified. The Contractor shall comply with the true intent and meaning of the drawings and specifications taken as a whole. The Contractor shall not avail himself of any manifest error or omission therein to the detriment of the work.

### 3.3 PROPERTY PROTECTION

The Asbestos Contractor shall be responsible under the conditions of this contract to take necessary precautions during the course of construction to safeguard the owner's property contained within the building to be renovated.

### 3.4 STORAGE ROOM

The Asbestos Contractor shall furnish for his own use a storage shed to be located on the site for storage of tools and materials, office area, etc. Upon completion of the project this shed shall be removed from the site and the site shall be returned to its original condition. Any damages caused by the Contractor shall be made good by him.

## SPECIAL CONDITIONS

### BIDDER'S INSPECTION:

- a. The bidder may contact \_\_\_\_\_ to make an appointment to view the existing building site.
- b. Before submitting proposal, bidder shall personally examine the site and acquaint himself with all attending conditions so that no misunderstanding may afterward arise as to the character or extent of work to be done, and to become acquainted with all measures necessary to prevent injuries to persons, or property of the State of Louisiana or others (including his organization).
- c. No additional compensation, other than what may be specifically allowed in the Specifications, will be granted because of any unusual difficulties which may be encountered in erection or maintenance of any portion of the work.

### ORGANIZATION OF WORK:

- a. The Contractor shall organize his work, as approved by the Owner, as outlined in the Specifications.

### CARE OF WORK:

- a. All building property, walkways, etc, must be protected by the Contractor, and upon completion, be left in as good condition as before his commencing work.
- b. Contractor will be responsible for any physical damage to the facility resulting from his work.

### TEMPORARY FACILITIES

- a. The Contractor shall provide and maintain temporary toilets as necessary for use by his workmen. Toilets shall be kept clean and in sanitary condition throughout the period of construction. Contractor will comply with all safety and health requirements of Occupational Safety & Health Act, or as required by Local or State law.
- b. Contractor shall provide all temporary storage facilities necessary for the proper protection of materials delivered to the site prior to installation.

- c. Barricades, lights and any and all other safety measures, either required customary or advisable because of the nature or extent of the work, needed for the protection of workmen, tenants and the public will be installed and maintained continuously while the aforementioned condition exists.

**TEMPORARY WATER DURING CONSTRUCTION:**

If water is used from on-site supply sources the Contractor shall provide all water connections required during the entire construction period.

**TEMPORARY ELECTRICITY DURING CONSTRUCTION:**

The Contractor shall provide all work required for temporary electric service. The Contractor may use the existing electric service only for his needs.

**SCHEDULING OF WORK:**

- a. The work shall be performed in the sequence and manner outlined in the Technical Specifications.
- b. All work will be scheduled with the asbestos abatement consultant.

**LOUISIANA STATE CONTRACTORS LICENSING LAW:**

A State of Louisiana Contractor's License is required at bid time.

**MODIFICATIONS TO GENERAL CONDITIONS:**

All additions, deletions, or changes to the General Conditions stated under this section supercedes the sections of the General Conditions so modified.

## INSURANCE REQUIREMENTS

The Contractor shall effect and maintain, until the date of the fulfilling of the Owner's acceptance of the work or as otherwise provided herein below, as follows:

### 1. Standard Worker's Compensation

The Contractor shall provide and maintain such insurance as will protect him from claims under Worker's Compensation Acts (including but not limited to the Louisiana Worker's Compensation Act) and any other claims for damages or personal injuries, including death, which may arise from operations under this contract, whether such operation be by himself or by any sub-contractor, or by anyone directly or indirectly employed by either of them.

The limit under the Employer's Liability Section of the Worker's Compensation Insurance Policy shall be in the amount of One Hundred Thousand Dollars (\$100,000.00).

The Worker's Compensation Insurance Policy shall include a waiver of subrogation in favor of the owner.

Any deductibles will be the responsibility of the Contractor.

### 2. Comprehensive General Liability Insurance

The Contractor shall carry Comprehensive General Liability Insurance. Limits of liability for Bodily Injury shall be not less than \$1,000,000.00 combined single limit on a claims made basis and \$1,000,000.00 aggregate. Limits of liability for property damage shall be not less than \$200,000.00 per occurrence and \$500,000.00 aggregate or limits necessary to purchase an umbrella. The policy shall include products and completed operations at the limits stated above and shall contain a provision that products and completed operations coverage for this job shall be extended to cover for two years beyond the completion date of this job. The provision shall contain a non-cancellation clause as to this provision. Policy must cover asbestos abatement as a part of overall coverage.

The policy shall contain a deletion of the X C U exclusion. The policy shall contain contractual liability covering this contract.

The policy shall contain a waiver of subrogation in favor of the Owner.

The policy shall include Broad Form Property Damage Liability, including Completed Operations.

Coverage for both Bodily Injury and Property Damage Liability shall be written on an occurrence basis.

3. Automobile Liability

The Contractor shall carry Automobile Liability Insurance. This insurance will cover all owned, non-owned and hired vehicles used in conjunction with this job. Limits of liability shall not be less than \$250,000.00 each person and \$500,000.00 each occurrence for bodily injury or death and \$100,000.00 for damage to property or limits necessary to obtain an umbrella.

Any deductibles will be the responsibility of the Contractor.

4. Owner's Protective (Contingent) Liability

The Contractor shall provide and pay for Owner's Protective (Contingent) Liability Insurance in the name of the Owner. Limits of liability for bodily injury and/or death shall not be less than One Million Dollars (\$1,000,000.00) for all injuries and/or deaths resulting from any one occurrence. Limits of liability for property damage shall not be less than Five Hundred Thousand Dollars (\$500,000.00) for each occurrence and not less than Five Hundred Thousand Dollars (\$500,000.00) aggregate policy limit during the policy period of one year (including Explosion, Collapse, and Underground property damage hazards).

This insurance shall be written on an occurrence basis for both bodily injury and property damage.

5. Umbrella Liability

The Contractor shall carry Umbrella Liability excess of Automobile Liability, Comprehensive General Liability, Owner's Protective Liability and Employer's Liability at limits of not less than One Million Dollars (\$1,000,000.00).

If Contractor does not have an Umbrella Liability Policy in excess of \$1,000,000.00, a primary insurance policy of \$1,000,000.00 as described in section 2 is acceptable.

6. Builders' Risk Insurance For Fire, Extended Coverage, Vandalism and Malicious Mischief.

The Contractor shall carry Fire, Extended Coverage, Vandalism and Malicious Mischief Insurance for not less than 100% of the value of the work, policy to be written under the completed value form. This insurance shall be in favor of Contractor and Owner, as their interests may appear.

7. Submission of Insurance Policies

The Contractor shall place all insurance with companies and in forms acceptable to the Owner. Within five (5) days of the signing of the Contract, the Contractor shall furnish or have his insurer furnish to the Owner Certificates of Insurance under all policies, such Certificates to be properly executed by an authorized representative of the insurer. The Certificates shall provide that prior written notice of not less than thirty (30) days shall be addressed to the Owner. The Contractor or his insurer shall use the certificate form approved by the Owner and attached as part of the contract documents. Upon request, the Contractor or his insurer shall immediately furnish copies of the required insurance policies to the Owner.

The Contractor will not be permitted to commence work until Certificates of Insurance or insurance policies have been approved by the Owner and his representative. The Owner will require (5) days to review the insurance policies.

SECTION 13000  
ASBESTOS REMOVAL

1.0 GENERAL

1.1 DESCRIPTION

- A. Work Included: Provide all labor, materials, etc. as specified herein, or otherwise needed, removal of all asbestos in indicated areas.
- B. Perform all work as outlined in Section I. Asbestos removal work will be limited to the areas detailed.

1.2 QUALITY ASSURANCE

- A. All work under this contract shall be done in strict accordance with all applicable Federal, State and Local regulations standards and codes governing asbestos abatement and any other trade work done in conjunction with the abatement.
- B. The most recent edition of any relevant regulation, standard document or code shall be in effect. Where conflict among the requirements or with these specifications exists the most stringent requirements shall be utilized.
- C. Specific Requirements
  - 1. Occupational Safety and Health Administration (OSHA).
  - 2. Title 29 Code of Federal Regulations, Section 1910.1001 General Industry Standard For Asbestos.
  - 3. Title 29 Code of Federal Regulations, Section 1910.134 General Industry Standard For Asbestos.
  - 4. Title 29 Code of Federal Regulations, Section 1926 - Construction Industry.
  - 5. Title 29 Code of Federal Regulations, Section 1910.2 Access to Employee Exposure and Medical Records.
  - 6. Title 29 Code of Federal Regulations, Section 1910.1200 Hazard Communication.

D. Environmental Protection Agency (EPA)

1. Title 40 of Federal Regulations, Part 61, Subparts A and M (Revised Subpart B) - National Emission Standard For Asbestos
2. Include citations for any State or Local regulations that apply to any phase of the asbestos abatement (e.g., licensing regulations, disposal requirements).
3. Title of other guidelines, codes, or documents with which the abatement Contractor must comply or be familiar.

E. Qualification of Removers: Use adequate numbers of skilled workman who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

1.3 SUBMITTALS

- A. General: General Contractors shall comply with provisions of Section 13000.
- B. General Contractor shall provide all required submittals as per specification.
- C. Contractor's Successful Performance
  1. Each bidder must submit, four (4) days prior to Bid Date, company's successful performance in asbestos-related projects of similar scope from three (3) projects within the last twelve (12) months.
    - a. This documentation must include the names and phone numbers of the purchasers of the service, location of the work performed, records of air monitoring for asbestos as required by OSHA Regulations (Section 1910.1001), types of respirators and filters used, and proof of workers' medical examinations. The bidder shall furnish with his bid, information on the air handling filter equipment that he is going to use on this project.

D. Project Superintendent

A knowledgeable project superintendent, with at least three (3) previous similar asbestos-related projects completed, employed full-time by the contractor, shall be present during initial project stages and throughout project duration. Said three (3) related projects, completed by the involved superintendent, must be documented and made available for review purposes, upon request by the Owner or Project Manager. This information must be available at preconstruction conference.

E. Prior to Commencement of Work

1. Send written notification in accordance with 40 CFR Part 61. 146 of Subpart M, to the appropriate State or Federal air pollution control agency responsible for the enforcement of the NESHAP for Asbestos at least ten (10) days prior to the commencement of any on-site project activity. Send duplicate copies prior to the commencement of work to the asbestos abatement consultant.
2. Submit proof satisfactory to the Building Owner's Representative that required permits, site location and arrangements for transport and disposal of asbestos containing waste materials have been made. Obtain and submit a copy of handling procedures and list of protective equipment utilized for asbestos disposal at the landfill, signed by the landfill Owner.
3. Submit to Owner's Representative upon notice of the award, the following information and certifications for each worker and supervisor who will perform work under this contract.

A resume for each employee to include name, address, social security number, and past experience with this type of work.

Current certificate of health, and documentation from a physician that all employees or agents who will be required to enter the work area have been provided with an opportunity to be medically monitored to determine whether they are respirator required without suffering adverse health effects. In addition, document that personnel have received medical monitoring as required in OSHA 29 CFR 1910.1001 (j). The Contractor must be aware of

and provide information to the examining physician about unusual conditions in the work place environment (e.g., high temperature, humidity, chemical contaminants) that may impact on the employee's ability to perform work activities.

A written certification, signed by the employee, that he has read and is thoroughly familiar with the regulations cited in this specification and that he is aware of the potential health effects of working within an asbestos environment.

4. General Contractor shall isolate specific areas for demolition prior to asbestos removal.
5. With the Building Owner or his representative, inspect the premises wherein all abatement and abatement related activities will occur and submit a statement signed by both, agreeing on building and fixture condition.
6. Submit manufacturer's certification that HEPA vacuums, negative pressure ventilation units, and other local exhaust ventilation units, and other local exhaust ventilation equipment conform to ANSI Z9.2-79.
7. When rental equipment is to be used in abatement areas or to transport asbestos contaminated waste, a written notification concerning intended use of the rental equipment must be provided to the rental agency with a copy submitted to the Building Owner.
8. Document NIOSH approvals for all respiratory protective devices utilized on site. Include manufacturer certification of HEPA filtration capabilities for all cartridges and filters.
9. Submit documentation of respirator fit-testing for all Contractor employees and agents who must enter the work area. This fit-testing may in accordance with qualitative procedures as detailed in the OSHA Lead Standard 29 CFR 1910.1025 Appendix D Qualitative Fit Test Protocol or be quantitative in nature.

F. During Abatement Activities

1. Submit daily (or as otherwise required by the Building Owner) job progress reports detailing abatement activities. Include review of progress with respect to previously established milestone and schedules, major problems and action taken, injury reports, equipment breakdown and bulk materials include Contractor's Air Sampling Professional.
2. Submit copies of all transport manifests, trip tickets and disposal receipts for all asbestos waste materials removed from the work area during the abatement process.
3. Submit daily, copies of worksite entry logbooks with information on worker and visitor access.
4. Submit logs documenting filter changes on respirators, HEPA vacuums, negative pressure ventilation units, and other engineering controls.

The Final payment will not be authorized until the following are submitted:

- a. copy of EPA notification form
- b. disposal information
- c. proof of medical exams for any new employees
- d. daily reports
- e. all the above submittals listed under 1.3 submittals

1.4 REGULATIONS

- A. The following information is to be available on the job site, and all supervisors are to be familiar with the contents.
1. U.S. Environmental Protection Agency Regional National Emissions Standards for Hazardous Air Pollutants (NESHAPS) (Code of Federal Regulations Title 40, Part 61, Subparts A and B).
  2. U.S. Department of Labor Occupational Safety and Health Administration (OSHA) Asbestos Regulations (Code of Federal Regulations Title 29, Part 1910, Section 1910.1001).

3. U.S. Environmental Protection Agency Office of Toxic Substances, Guidance Document for controlling asbestos-containing materials in buildings (purple book).
4. American National Standard Practices for Respiratory Protection, ANSI Z88.2-1969; and
5. Any other applicable Federal, State, County, or Local Rules or Regulations.

#### 1.5 PRECONSTRUCTION CONFERENCE

A. The Contractor shall attend a preconstruction conference scheduled by the Owner's representative. At this conference the asbestos contractor shall present in detail the following.

1. Preparation of work area.
2. Personal protective equipment including respiratory protection and protective clothing.
3. Employees who will participate in the project, including delineation of experience, training, and assigned responsibilities during the project.
4. Decontamination procedures for personnel, work area and equipment.
5. Abatement methods and procedures to be utilized.
6. Required air monitoring procedures.
7. Procedures for handling and disposing of waste materials.
8. Procedures for final decontamination and cleanup.
9. A sequence of work and performance schedule.
10. Procedures for dealing with heat stress.
11. Emergency procedures.

## 1.6 PRODUCT HANDLING

### A. Protection

Deliver all materials in the original packages, container, or bundles bearing the name of the manufacturer and the brand names.

Store all materials subject to damage, off the ground, away from wet or damp surfaces, and under cover sufficient enough to prevent damage or contamination. Replacement materials shall be stored outside of the work area until abatement is completed.

### B. Replacement

Damaged, deteriorating or previously used materials shall not be used and shall be removed from the worksite and disposed of properly.

## 2.0 PRODUCTS

### 2.1 MATERIALS

All materials listed below shall be furnished by the Contractor. The Contractor shall be responsible for the latest publication on the application of materials approved by EPA, OSHA, etc.

### 2.2 PROFO-BAG (IF NEEDED)

The 7 mil clear ply bag should measure the standard size of 44" x 63" and printed with caution signs. The arms shall be polycoated Tyvek or approved equal with latex gloves.

### 2.3 PLASTIC SHEETING

Polyethylene sheets 6 mil minimum.

### 2.4 PLASTIC BAGS

Sealable plastic bags 6 mil minimum, labeled "ASBESTOS."

### 2.5 TAPE

1" plastic double-stick tape and 3/4" plastic electrical tape. All tape is required to be water-resistant.

## 2.6 EXHAUSTING SYSTEM

HEPA filtered air exhausting system (High Efficiency Particulate Air; 99.9% efficient on particulates 0.3u in size).

## 2.7 LABELS AND SIGNS

Asbestos warning labels and signs.

## 2.8 RESPIRATORS AND FILTERS

Respirators and filters for the job shall be NIOSH Type H - High Efficiency Filters - 1/2 face mask.

## 2.9 WASTE RECEPTACLES

Receptacles shall be stiff-walled (55 gal. drum), air-tight, sealable containers (for transportation to the landfill).

## 2.10 WORKERS' DRESS CODE

Work clothes will consist of disposable coveralls, disposable head covers, boots, or sneakers. Eye protection and hard hats are also required.

## 2.11 WETTING AGENT

The wetting agent shall be 50% polyoxyethylene ester and 50% polyoxyethylene ether or the equivalent, in a concentration of one (1) ounce in five (5) gallons of water.

## 3.0 EXECUTION

### 3.1 PREPARATION

The only approved method for abatement other than the glovebag technique shall be the wet removal technique where all non-friable asbestos material is removed wet and intact, this method allows removal of non-friable acbm without containment.

#### A. Work Areas

Post caution signs meeting the specifications of OSHA 29 CFR 1910.001 (g) (1) (ii) at any location and approaches to a location where airborne concentrations of asbestos may exceed ambient background levels. Signs shall be posted at a distance sufficiently far

enough away from the work area to permit an employee to read the sign and take the necessary protective measures to avoid exposure. Additional signs may need to be posted following construction of enclosure barriers.

### 3.2 AIR MONITORING

- A. If, at any time, any air sample outside the chambered area rises above the dangerous level (0.1 f/cc, action level) as outlined by the EPA, the work will be stopped immediately, and air cleaning and surface cleaning procedures will be implemented. If the fiber levels in the work area exceed the action level (0.1 f/cc), as outlined by the EPA in the work area three times, P.A.P.R. respirators (air supplied) will be required of all workers for the duration of the project.
- B. Besides air monitoring, an inspection format will be provided to help the Owner's representative or air monitoring contractor evaluate performance of the asbestos removal contractor.
- C. When the contractor exceeds the Action Level, all work should cease and general wet cleanup begin. Air cleaning (HEPA filtered) equipment will be required. It is critical that Action Level numbers not be exceeded without corrective steps being taken immediately.
- D. Besides taking the required air samples, the air monitoring laboratory is to fill in the inspection form and submit it with the air monitoring results to Owner's representative.

### 3.5 SAMPLING AND ANALYZING AIRBORNE ASBESTOS FIBERS

- A. Throughout the removal and cleaning operations, air sample monitoring will be conducted to ensure that the Contractor performing abatement is conducting the procedures in the cleanest manner and complying with the latest additions to the codes, regulations and ordinances.
- B. Samples shall be taken prior to the abatement (base lines) during the abatement process, and after the abatement process (Clean air).
- C. All fiber counts shall be analyzed using phase contrast microscopy (P.C.M.).
- D. Samples taken during the abatement shall be analyzed using phase contrast microscopy (PCM) methods.
- E. Air monitoring shall be performed to provide the following samples before and after the abatement period (for clearance).

Areas to be Sampled	Number of Samples	Each Sample Volume Liters
Inside Work Area	2(min)	1,000(min)
Outside the Work Area	2(min)	1,000(min)

Areas to be Sampled	Number of Samples	Each Sample Min Volume Liters
(Clearance)		
Work Area	2	3,000
Outside Work Area	1	3,000

### 3.6 MEDICAL MONITORING

- A. Medical monitoring must be provided by the Contractor to any employee or agent who may be exposed to asbestos in excess of background levels during any phase of the abatement project. (Due to the synergistic effects between smoking and asbestos exposure, it is highly recommended that only non-smokers be employed in positions which may require them to enter asbestos contaminated atmosphere).

B. Medical monitoring shall include at a minimum:

1. A work/medical history to elicit symptomatology of respiratory disease.
2. A chest x-ray (posterior - anterior, 14 x 13 inches) evaluated by a Certified B-reader.
3. A pulmonary function test, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV), administered and interpreted by a Certified Pulmonary Specialist.

C. Employees shall be given an opportunity to be evaluated by a physician to determine their capability to work safely while breathing through the added resistance of a respirator. (Examining physicians shall be aware of the nature of respiratory protective devices and their contributions to breathing resistance. They shall also be informed of the specific types of respirators the employees shall be required to wear and the work he will be required to perform, as well as special workplace conditions such as high temperature, high humidity, and chemical contaminants to which he may be exposed).

3.7 PERSONNEL PROTECTION REQUIREMENTS

A. Training

1. Prior to commencement of abatement activities all personnel who will be required to enter the work area or handle containerized asbestos containing materials must have received adequate training in accordance with Section 3.3 of this document.
2. Special on-site training on equipment and procedures unique to this job site shall be performed as required.
3. Training in emergency response and evacuation procedures shall be provided.

B. Respiratory Protection

1. All respiratory protection shall be provided to workers in accordance with the submitted written respiratory protection program, which includes all items in OSHA 29 CFR 1910.134 (b) (1-11). This program shall be posted in the clean room of the worker decontamination enclosure system.

2. Workers shall be provided with personally issued, individually identified [marked with waterproof designations] respirators.

3. Levels of Protection

a. During preparation of the work area prior to abatement (including only the precleaning and barrier and enclosure system construction phase), during abatement and for the "outside" team during removal of waste containers, half facepiece, air-purifying, dual cartridge respirators with high efficiency cartridges shall be required as a minimum level of protection.

b. Respirator filters approved by NIOSH for asbestos containing dust mists and fumes are based on preventing asbestosis, but not cancer. With this limitation in mind, only high efficiency (NIOSH Type H) filters approved for radon-daughters (purple code) will be acceptable for this work.

3.8 REMOVAL PROCEDURES

A. Clean and isolate the work area in accordance with Section 3.1.

B. Wet all asbestos containing material with an amended water solution using equipment capable of providing a fine spray mist, in order to reduce airborne fiber concentrations when the material is disturbed. Saturate the material to the substrate; however, do not allow an excessive water accumulation in the work area. Keep all removed material wet enough to prevent fiber dispersion until it can be containerized for disposal. Maintain a high humidity in the work area by misting or spraying to assist in fiber settling and reduce airborne concentrations. Wetting procedures are not equally effective on all types of asbestos containing materials but shall nonetheless be used in all cases.

C. Saturated asbestos containing material shall be removed in manageable sections. Removed material should be containerized by placing in plastic bags before moving to a new location for continuance of work. Surrounding areas shall be periodically sprayed and maintained in a wet condition until visible material is cleaned up.

- D. Material removed from building structures or components shall not be dropped or thrown to the floor. Material should be removed as intact sections or components whenever possible and carefully lowered to the floor. Scaffolding will be needed to remove any excessively high rise insulated pipe. For materials between 15 and 50 feet above the ground they may be containerized at elevated levels or dropped onto inclined chutes or scaffolding for subsequent collection and containerization.
- E. Containers (6 mil polyethylene bags or drums) shall be sealed when full. Wet material can be exceedingly heavy. Double bagging of waste material is mandatory. Bags shall not be overfilled. They should be securely sealed to prevent accidental opening and leakage by tying tops of bags in an overhand knot or by taping in gooseneck fashion. Do not seal bags with wire or cord. (Bags may be placed in drums for staging and transportation to the landfill. Bags shall be decontaminated on exterior surfaces by wet cleaning and HEPA vacuuming before being placed in clean drums and sealed with locking ring tops).
- F. Large components removed intact may be wrapped in two layers of 6 mil polyethylene sheeting secured with tape for transport to the landfill.
- G. Asbestos containing waste with sharp-edged components (e.g. nails, screws, metal lath, tin sheeting) will tear the polyethylene bags and sheeting and should be separated from the bulk ACM material and placed into separate drums for disposal.
- H. After completion of all stripping work, surfaces from which asbestos containing materials have been removed shall be wet brushed and sponged or cleaned by some equivalent method to remove all visible residue.
- I. Clean-up shall proceed in accordance with Section 3.10.
- J. After the work area has been rendered free of visible residues, one (1) coat of satisfactory encapsulating agent shall be applied to all surfaces in the work area. (Note: If insulation or acoustical materials are to be reapplied to the abated area, be certain that the encapsulant selected will permit good adhesion to the substrate. A small area should be tested before application).

- K. Special circumstances (e.g. live electrical equipment, high amosite content of material, materials previously coated with an encapsulant or paint) may prohibit the adequate use of wet methods to reduce fiber concentrations. For these situations, a dry removal may be required which necessitates the acquisition of special permits different from those mentioned herein from the NESHAP enforcement agency.

### 3.9 CLEAN-UP PROCEDURE

- A. Remove and containerize all visible accumulations of asbestos containing material and asbestos contaminated debris utilizing rubber dust pans and rubber squeegees to move material around. Do not use metal shovels to pick up or move accumulated waste.
- B. The work area shall be cleaned until it is in compliance with State and Local requirements and any more stringent criteria agreed upon by the Contractor and Owner prior to initiation of abatement activities (criteria should be in the form of visual inspections and airborne fiber concentrations). Additional cleaning cycles shall be provided, as necessary, at no cost to the Building Owner until these criteria have been met.
- C. Following the satisfactory completion of clearance air monitoring remaining barriers may be removed and properly disposed of. A final visual inspection by the Owner shall insure that no contamination remains in the work area. Unsatisfactory conditions may require additional cleaning and air monitoring.

### 3.10 DISPOSAL PROCEDURES

- A. As the work progresses, to prevent exceeding available storage capacity on site, sealed and labeled containers of asbestos containing waste shall be removed and transported to the prearranged disposal location.
- B. Disposal must occur at an authorized site in accordance with regulatory requirements of NESHAP and applicable State and Local guidelines and regulations.
- C. All dump receipts, trip tickets, transportation manifests or other documentation of disposal shall be delivered to the Building Owner for his records. A recommended record keeping format utilizes a chain of custody form which includes the name and addresses of the Generator (Building Owner) and Contractor, name and address of the pickup site, the estimated quantity of

the asbestos waste, the type of containers used and the destination of the waste. The form should be signed by the Contractor, and the Disposal Site Operator, as the responsibility for the material changes hands. If a separate hauler is employed, his name, address, telephone and signature should also appear on the form.

D. Transportation to the landfill

1. Once drums, bags and wrapped components have been removed from the work area, they shall be loaded into an enclosed truck for transportation.
2. When moving containers, utilize hand trucks, carts and proper lifting techniques to avoid back injuries. Trucks with lift gates are helpful for raising drums truck loading.
3. The enclosed cargo area of the truck shall be free of debris and lined with 6-mil polyethylene sheeting to prevent contamination from leaking or spilled containers. Floor sheeting shall be installed first and extend up the sidewalls. Wall sheeting shall be overlapped and taped into place.
4. Drums shall be placed on level surfaces in the cargo area and packed tightly together to prevent shifting and tripping. Large structural components shall be secured to prevent shifting and bags placed on top. Do not throw containers into truck cargo area.
5. Personnel loading asbestos containing waste shall be protected by disposable clothing including head, body and foot protection and at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.
6. Any debris or residue observed on containers or surfaces outside of the work area resulting from clean-up or disposal activities shall be immediately cleaned-up using HEPA filtered vacuum equipment and/or wet methods as appropriate.

E. DISPOSAL AT THE LANDFILL

1. Upon reaching the landfill, trucks are to approach the dump location as closely as possible for unloading of the asbestos containing waste.

2. Bags, drums and components shall be inspected as they are off-loaded at the disposal site. Material in damaged containers shall be repacked in empty drums or bags as necessary. (Local requirements may not allow the disposal of asbestos waste in drums. Check with appropriate agency and institute alternative procedures).
3. Waste containers shall be placed on the ground at the disposal site, not pushed or thrown out of trucks (weight of wet material could rupture containers).
4. Personnel off-loading containers at the disposal site shall wear protective equipment consisting of disposable head, body and foot protection and, at a minimum, half-facepiece, air-purifying, dual cartridge respirators equipped with high efficiency filters.
5. Follow the removal of all containerized waste, the truck cargo area shall be decontaminated using HEPA vacuums and/or wet methods to meet the no visible residue criteria. Polyethylene sheeting shall be removed and discard along with contaminated cleaning materials and protective clothing, in bags or drums at the disposal site.
6. If landfill personnel have not been provided with personal protective equipment for the compaction operation by the landfill operator, Contractor shall supply protective clothing and respiratory protection for the duration of this operation.

### 3.11 CLEARANCE AIR MONITORING

- A. Following the completion of clean-up operations, the Asbestos Abatement Contractor shall notify the Building Owner that work areas are ready for clearance testing.
- B. The Owner shall then arrange for the Air Monitoring Professional to sample the air in the work area for airborne fiber concentrations.
- C. The number of samples that are required and the specific locations where they shall be taken shall be established in conjunction with an industrial hygienist before final clearance testing begins.

- D. For final clearance sampling all samples at indicated locations shall have concentrations of airborne fibers less than .01 f/cc in the work areas tested.
- E. Areas exceeding this level shall be recleaned using procedures in Section 3.10 and retested until satisfactory levels are obtained, additional testing and analyses will be paid by the abatement contractor.

### 3.12 REESTABLISHMENT OF THE WORK AREA AND SYSTEM

- A. Reestablishment of the work area shall only occur following the completion of clean-up procedures and after clearance air monitoring has been performed and documented to the satisfaction of the Consultant and the Building Owner.
- B. The Contractor and Owner shall visually inspect the work area for any remaining visible residue. Evidence of contamination will necessitate additional cleaning requirements in accordance with Section 3.7.
- C. Additional air monitoring shall be performed in accordance with Section 3.8 if additional clean-up is necessary.
- D. Following satisfactory clearance of the work area, any polyethylene barriers may be removed and disposed of as asbestos contaminated waste.
- F. At the discretion of the Contractor, mandatory requirements for personal protective equipment may be waived following the removal of all barriers.
- G. Re-secure mounted objects removed from their former positions during area preparation activities.
- H. Relocate objects that were removed to temporary locations back to their original positions.
- I. Reestablish any HVAC, mechanical and electrical systems in proper working order. Remove contaminated HVAC system filters and dispose of an asbestos contaminated waste. Decontaminate filter assembly using HEPA vacuums and wet cleaning techniques. Install new filters in HVAC systems. Dispose of old filters.
- J. Repair all area of damage that occurred as a result of abatement activities.

## PROOF OF COMPETENCY OF CONTRACTOR

Contractor shall be required to furnish evidence satisfactory to the Owner and his representative that he has sufficient means and experience in the type of work called for to assure completion of the contract in a satisfactory manner. The contractor must submit a list of at least three (3) jobs of similar description performed within the past twelve (12) months. The contractor must also submit a list of any jobs from which he has been terminated and the names of the respective owners of the jobs. The names of all industrial hygienists, engineers and industrial hygiene consulting firms the bidder has worked with within the past twelve (12) months must also be listed.

## LICENSING

On any bid submitted in the amount of fifty thousand dollars or more, the contractor shall certify that he is licensed under Provisions R.S. 37:2150-2163 as amended and show his licensed number on the bid above his signature or the signature of his duly authorized representative. The contractor shall list his license number on the upper left hand corner of the sealed envelope. All bids in the amount of fifty thousand dollars (\$50,000.00) or more not in accordance with the above requirements shall be automatically rejected.

## INTERPRETATION OF CONTRACT DOCUMENTS PRIOR TO BIDDING

If any person contemplating submitting a bid for construction of the work is in doubt as to the true meaning of any part of the proposed Contract Documents, or finds discrepancies in or omissions from any part of the proposed Contract Documents, he may submit to the Consultants a written request for interpretation thereof not later than four days before bids will be opened:

1. The person submitting the request shall be responsible for its prompt delivery.
2. Interpretation or correction of proposed Contract Documents will be made only by Addendum, and will be mailed or delivered to each bidder of record.
3. The Owner will not be responsible for any other explanations or interpretations of the proposed Contract Documents.

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## **APPENDIX C**

### **TECHNICAL SPECIFICATIONS**

## C-1 MOBILIZATION, SITE PREPARATION, CONSTRUCTION FACILITIES, MAINTENANCE, AND DEMOBILIATION

### Scope

This section covers requirements for the REMEDIAL CONTRACTOR (CONTRACTOR) to mobilize to the SITE, prepare SITE facilities and OFF-SITE work area(s) for the work, maintain the SITE and OFF-SITE work area(s) throughout the work, and demobilize upon Project completion. The work covered in this section includes, but is not necessarily limited to, the following:

- Acquisition of necessary permits, leases, agreements and/or street use privileges;
- Set up of the CONTRACTOR'S office and the CONTRACTOR'S personnel and equipment decontamination facilities;
- Disconnect and relocate existing water, gas, electric and phone services;
- Connection to the utilities necessary for Work;
- Establishment of OFF-SITE Work Area(s) (exclusion zones, traffic controls and air monitoring);
- Preparation and submittal of a Project Health and Safety Plan, pursuant to requirements set forth by the CONSULTANT'S Health and Safety Plan;
- Install perimeter security fence and gates;
- Establish and maintain SITE security;
- Establish a two way communications system with transport vehicles;
- Install truck scales or develop an alternate means of verification of the truck weight leaving the site;
- Establish fluids storage and waste storage areas inside the warehouse building;
- Cleaning and maintenance of the SITE and OFF-SITE work area(s);
- Cleanup and removal of CONTRACTOR'S materials, and equipment upon completion; and
- Repair of damage to the SITE or other areas caused by the CONTRACTOR.

### Materials and Equipment

#### CONTRACTOR'S Temporary Utilities and Facilities

The CONTRACTOR shall supply and maintain the following on-site facilities and utilities:

- Office trailer(s) - CONTRACTOR AND CONSULTANT

Office Trailers must have the following amenities:

- Multiple high speed internet connection;
- Telephone service;



- Facsimile machine;
- Copier;
- Decontamination facility(ies);
- Toilet;
- Potable water;
- Electricity; and
- First Aid kit

No sewer or septic facilities are available at the SITE. The CONTRACTOR shall collect wastewater from toilet, sink, and shower facilities and dispose of same at a facility authorized to dispose or treat such material. Said wastewater shall not be used for dust control watering.

The CONTRACTOR shall either (1) provide separate shower and clothes-changing facilities for each sex, or (2) operate the single shower and clothes-changing facility in such a manner that either sex may independently and securely use the facility at different times.

A recommended trailer placement scheme is shown on the Remedial Activities Plan layout provided as Figure 6-1 pf the RD. The suggested placement is such that trailer occupants may monitor the facility entrance gate, providing an additional level of security during work hours.

### **Execution**

#### **Leases, Permits and Others**

Prior to mobilizing to the SITE, the CONTRACTOR shall obtain all leases, permits, access agreements, street use privileges, etc., from federal, state and local authorities, as required, for the completion of the Work. The CONTRACTOR shall not execute an agreement with any nearby landowner without prior written consent from the CLIENT.

Anticipated permit and notifications may include but are not limited to the following:

- Excavation Permit;
- Building Demolition Permit;
- Asbestos Removal Permit;
- Remedial Activities Enclosure Permit;
- Road Closures and Street and sidewalk Right-of-way Easement Permit and Notification;

- Power;
- Utilities; and
- City Water.

Should additional permits and approvals be needed, the appropriate items shall be obtained as expeditiously as possible.

At least 48 hours before any excavation, the Louisiana One Call System (1-800-272-3020) will be notified to minimize the potential for coming into contact with underground utilities.

#### CONTRACTOR'S Temporary Utilities and Facilities

The CONTRACTOR'S telephone shall become the official emergency telephone for the Project. The CONTRACTOR'S temporary utilities and facilities, including the CONTRACTOR'S personnel decontamination facility, shall be set up in a manner and at locations acceptable to the ENGINEER or CLIENT. The CONTRACTOR'S personnel decontamination facility shall conform to the requirements of Appendix C-12, Decontamination, and the CONSULTANT'S Health and Safety (H&S) Plan.

#### Work Areas

The CONTRACTOR shall clearly demarcate and secure each ON-SITE and OFF-SITE work area(s) with the appropriate Exclusion Zone(s) (potentially impacted areas), traffic controls, and other boundaries delineated in the CONTRACTOR'S H&S Plan or necessary for execution of the Work. This shall include the use of appropriate tape, stakes, flagging, spray paint, temporary fencing and/or an appropriate person authorized by the local authorities to control and re-route traffic.

All personnel, materials, and equipment which enter the Exclusion Zone shall be decontaminated. Potentially contaminated materials and equipment scheduled for disposal, shall be transported to an authorized facility for disposal of HAZARDOUS MATERIALS (treatment, storage and disposal [TSD] facility), unless otherwise specified by the CLIENT.

#### Parking

Limited space is available within the SITE boundaries for vehicle parking. OFF-SITE parking and vehicle staging are likely to require coordination with the city and/or permits. As necessary, the CONTRACTOR shall provide for OFF-SITE parking and adequate

transportation between the OFF-SITE parking area and the SITE. The CONTRACTOR'S and SUBCONTRACTOR'S employees shall park at an area designated by the contractor but not on the adjacent streets.

#### Rubbish and Trash

Routinely throughout the Project, and upon request of the CONSULTANT, CLIENT, or OWNER, the CONTRACTOR shall police the SITE and OFF-SITE work area(s) and collect rubbish and trash. In no event shall the CONTRACTOR allow rubbish and trash to collect such that a safety or fire hazard exists.

The CONTRACTOR will obtain municipal garbage containers at the SITE for the routine disposal of municipal debris (materials that do not contain HAZARDOUS MATERIALS).

Hazardous debris (materials that contain HAZARDOUS MATERIAL) shall be collected in clearly marked Department of Transportation (DOT) certified containers. This shall include used personal protective equipment. Hazardous debris shall be routinely disposed of along with other materials shipped to an authorized facility for disposal of HAZARDOUS MATERIALS (TSD facility).

#### Health and Safety and Security

In addition to the requirements of the CONTRACTOR'S H&S Plan and APPLICABLE LAW, the CONTRACTOR shall, at a minimum, conduct the following:

##### 1) Site Control

For the duration of the project, the CONTRACTOR shall assume, for the CLIENT and OWNER, the responsibility for (1) SITE health and safety and (2) any SITE security, in addition to the existing fencing, that is deemed necessary by the CONTRACTOR. The CONTRACTOR is granted, but the CLIENT and OWNER, commensurate authority regarding methods, procedures, access, and such other matters that are necessary for the CONTRACTOR to fulfill such responsibility. The CONTRACTOR'S responsibility and authority shall be continuous during all 24 hours of each day, and is not limited to work hours.

##### 2) Health and Safety Instructions

At the beginning of Work on the SITE and as necessary thereafter, the CONTRACTOR shall instruct the CONTRACTOR'S work force, the CLIENT, the CONSULTANT, and



SITE visitors regarding SITE health and safety measures. These measures will include but are not limited to:

- Personnel Training;
- Preparation of decontamination facilities;
- Notification of local emergency services;
- Display of emergency phone numbers and escape routes;
- Equipment and Supply Check.

### 3) Authorized Visitors

The CONTRACTOR shall limit access to the SITE, and particularly to the Exclusion Zone(s), to only those individuals which have completed and provide documentation of a minimum of 40 hours health and safety training, medical surveillance, personal protective equipment, and site-specific and activity-specific instruction and that conforms to APPLICABLE LAW and the CONTRACTOR'S H&S Plan. The CONTRACTOR shall maintain a list of authorized visitors for this purpose.

### 4) Site Security

The new fence that surrounds the SITE, to be installed by the CONTRACTOR, shall be periodically patrolled by a security service retained by the CONTRACTOR. The CONTRACTOR'S activities shall not serve to reduce the present level of SITE security. If fences are removed or damaged as part of the WORK, equivalent protection shall be provided until said fences are repaired or replaced. This shall include temporary fencing or additional patrols as necessary. The existing SITE security FENCE is for the benefit of the CLIENT and OWNER only and the CONTRACTOR shall, at the CONTRACTOR'S expense, add security measures which are necessary to protect the CONTRACTOR'S materials and equipment, or to prevent access to HAZARDOUS MATERIALS which the CONTRACTOR exposes during demolition or excavation work.

As shown in Figure 6-1, a 6-foot security fence with three strands of barbed wire on top and privacy shields will be constructed at the street curb along Burdette, Colapissa, and Pine Streets. Warning signs will be posted at 50-ft. intervals along the length of the fencing.

Equipment and personnel entrance gate(s) will be installed with controls by a security guard. Sign-in and sign-out requirements will be imposed at all times during the remedial activities.

The designated transportation routes are presented on Figure 6-2. Empty transportation trucks will enter the site through the gate located on Burdette Street. Transport trucks containing impacted media will exit the site from a strategically placed security gate along Pine Street.

Prior to any excavation being performed adjacent to a city street, the safety and traffic provisions will be provided for in accordance with the city requirements as stated in Section 146-453 of the Code of Ordinances, City of New Orleans, LA.

Signage meeting US Department of Transportation (DOT), Louisiana Department of Transportation and Development (LDOTD), City of New Orleans, and Occupational Safety and Health Administration (OSHA) standards will be placed, as necessary, to inform local traffic of the construction conditions and detour routes.

#### 5) No Relief

From time to time, the CLIENT, OWNER, CONSULTANT, or other SITE visitors may or may not comment on the CONTRACTOR'S health and safety or security measures. None of the actions of the CONSULTANT, CLIENT, OWNER, or SITE visitors shall serve to relieve the CONTRACTOR of responsibility for SITE health and safety and security.

#### SITE Maintenance

The CONTRACTOR shall promptly decontaminate and remove materials or equipment that have served their use on the SITE.

At the end of each day, the CONTRACTOR shall perform the following:

- The SITE shall be secured;
- Equipment and materials shall be stored in designated locations; and

At all times, the CONTRACTOR shall maintain free access to emergency facilities and shall not store materials and equipment in passageways. The CONTRACTOR shall store materials and equipment at a safe distance from demolition and excavation activities.

#### Protection of Existing Facilities

The CONTRACTOR shall protect existing structures, pavements, utilities, trees, fences, and appurtenances that are not scheduled for demolition. The CONTRACTOR shall promptly restore, at CONTRACTOR'S cost, all damage to facilities not scheduled for



demolition. Damage shall be corrected to the satisfaction of the OWNER, CLIENT or CONSULTANT.

Final Cleanup and Demobilization

Upon completion of the Work, the CONTRACTOR shall decontaminate and remove all materials and equipment brought to the SITE. The CONTRACTOR shall coordinate final SITE cleanup so that cleanup materials may be efficiently combined with the last load of building debris or excavated soil scheduled for transportation to the TSD facility (ies).

In addition to cleaning and removing all materials attributable to the CONTRACTOR'S activities, the CONTRACTOR shall perform the following:

- Disassembly and Decontamination of the Enclosed Remedial Activities Building according to Appendices C-2 and C-12; and
- Restoration of Site to meet standards specified in Appendix C-11.

## C-2 ENCLOSED REMEDIAL ACTIVITIES BUILDING (ERAB)

### Scope

This section covers the requirements for the design, fabrication, and installation of the temporary structure to facilitate remedial activities. The enclosed, remedial activities building (ERAB) shall consist of a Sprung Instant Structure© (SIS), or equivalent, with approximate dimensions of 70'x 90', an air handling system, and other related ancillary items. It is not anticipated that a traditional foundation will be required for the ERAB since the structure will be bearing on an asphalt pavement. However, shims or other techniques may be required to provide a level surface. The temporary structure will be used to minimize environmental impacts to the surrounding community at the site. The specifications for the ERAB are provided below to provide an indicator of the type of structure required. An example of an acceptable ERAB, manufactured by SIS, as shown in Figures C-2A and C-2B.

### Submittals

The CONTRACTOR shall provide design drawings and manufacturers performance specifications for the proposed ERAB for review by CONSULTANT and CLIENT. A favorable review is required by the CONSULTANT and CONTRACTOR prior to CONTRACTOR'S mobilization to the SITE.

### Materials and Equipment

The size and weight of prefabricated components shall permit easy handling in the field; the maximum size and weight of any component shall be suitable for transportation by commercial carrier. Each piece or part of the structure assembly shall be clearly and legibly marked to correspond with detailed drawings. Fasteners shall be as recommended by the Manufacturer to meet the design strength requirements for erection of the structure. The structure shall be fastened to the ground in a manner that prevents normal weather conditions (moderate wind and rain) from disrupting scheduled work.

Interior infrastructure that will facilitate the required ventilation and air filtration system (VAFS) must be provided. The ventilators used in the air handling, filtration, and



exhaust system shall consist of multiple vents, which draw air from the required structures in an upward manner. A minimum air exchange rate of four (4) air exchanges per hour shall be required for the excavation and loadout structures. Prior to exhaust ventilation, air must pass through a HEPA filtering apparatus and an activated carbon filtration unit or thermal oxidizer.

Hinged doors and frames shall be constructed of a material that is not subject to rusting or be painted in such a manner to resist oxidation and shall be rated to meet minimum Building Code requirements. Exterior doors shall have top edges closed flush and sealed against water penetration. Hardware shall be standard Manufacturer recommended hardware.

Two manual roll-up doors shall be industrial type of standard manufacture, fabricated of fourteen (14) gauge or heavier galvanized-coated steel or aluminum. All hardware necessary for the complete installation of the doors shall be furnished. Accessories shall include galvanized steel track, brackets, lifting handles, torsion-spring mechanism, ball bearing rollers, cylinder lock, and weather stripping.

#### Execution

The stressed membrane structure shall be designed as a movable or liftable building. The building must be capable of being easily relocated. Each building relocation, if required, shall not exceed eight (8) workdays (for disassembly and reassembly as work progresses).

The structure shall be designed to minimize to the extent practical all dust emissions from the building and non contact surface water from entering the building, and as such, shall require methods for personnel and equipment access to the ERAB to be controlled. A vehicle air containment entry/exit system that has the capacity to accommodate transport vehicles and excavation equipment, within the structure, is required.

The required VAFS shall be designed to meet the emission requirements set forth by the Air Monitoring Plan (Appendix E of Remedial Design) as well as protect the health of workers inside the ERAB who will be confined to Level B protection. The invasive remedial activities will require the usage of diesel powered earth moving equipment inside the ERAB. The use of catalytic mufflers and passive on-board Sootfilter systems will be considered for use on all diesel powered heavy equipment operated inside the ERAB. The use of such devices may offer advantages by reducing the airborne contaminants in the working environment inside the ERAB, in addition to reducing the potential emissions of vapors generated from the site all together. Equipment emissions and the volatilization of VOCs present in the soil will create a volatile environment inside the ERAB that must be efficiently managed by the VAFS.

To ensure that no constituents are released from the site, the ERAB will be virtually air tight and the VAFS will produce a negative pressure within the ERAB, relative to outside the building, and the exhaust of the VAFS will be processed in a manner which will prevent dust or other contaminants from being emitted from the building. The exhaust from the ERAB's VAFS will be sufficient to treat airborne particulates and gases generated from the remedial activities. Based on the four (4) air exchanges per hour rate, the VAFS shall be capable of moving and effectively treating greater than 1,700 cfm. To effectively treat the exhaust air from the VAFS, it is anticipated that a combination of air treatment systems, set-up in series with one another, will be necessary. For instance, an initial particulate screening device (i.e. cartridge or furnace filter) followed by a carbon or thermal oxidation treatment system capable of treating the semi-organic and volatile organic compounds anticipated to be encountered.

The structure and foundation dimensions shall not extend past the fenced property line surrounding the SITE.

Interior columns are not desired due to the restrictions these may impose on remedial activities. Equipment access with roll-up doors, personnel doors, air-handling/filtration



units, connections to the conveyor structure for the conveyor belt system, and minimum lighting requirements shall be included in the overall loadout area.

Erection of the structure shall be performed by the CONTRACTOR at the direction of the Building Manufacturer representative. The CONTRACTOR shall be responsible for installing and furnishing the following:

- Erection of the structure (including foundation, if required);
- Equipment and Personnel access with doors;
- Earth anchors or equivalent;
- Framing members;
- Air handling exchange system(s);
- Lighting, if required; and
- Other miscellaneous items specified by the CONTRACTOR.

The CONTRACTOR shall furnish temporary guys and bracing where needed for squaring and securing the structural framing against loads acting on the exposed framing, such as wind loads, as well as loads due to erection equipment and erection operations. Structural members shall not be field cut or altered.

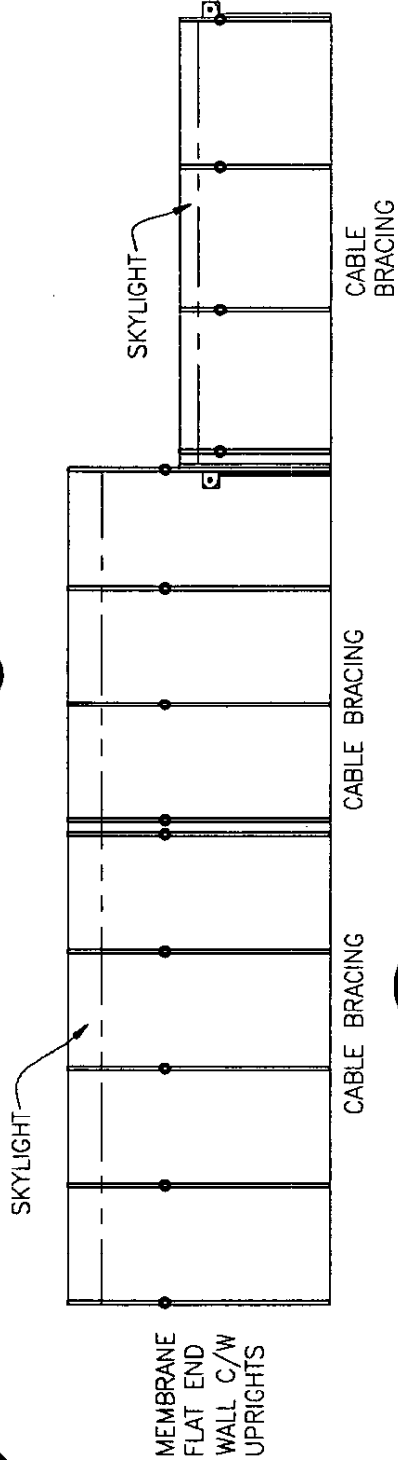
Upon project completion, the CONTRACTOR is required to Decontaminate and Disassemble, with the consultation of a Representative of the Manufacturer, the ERAB. If the ERAB cannot be decontaminated to its original condition, it will be the responsibility of the CONTRACTOR to purchase and properly dispose of the contaminated structure. If the structure is in proper condition to be returned to the Manufacturer, it will be the CONTRACTOR'S responsibility to make accommodations for transport of the structure to a location specified by the Manufacturer.

#### Design Requirements

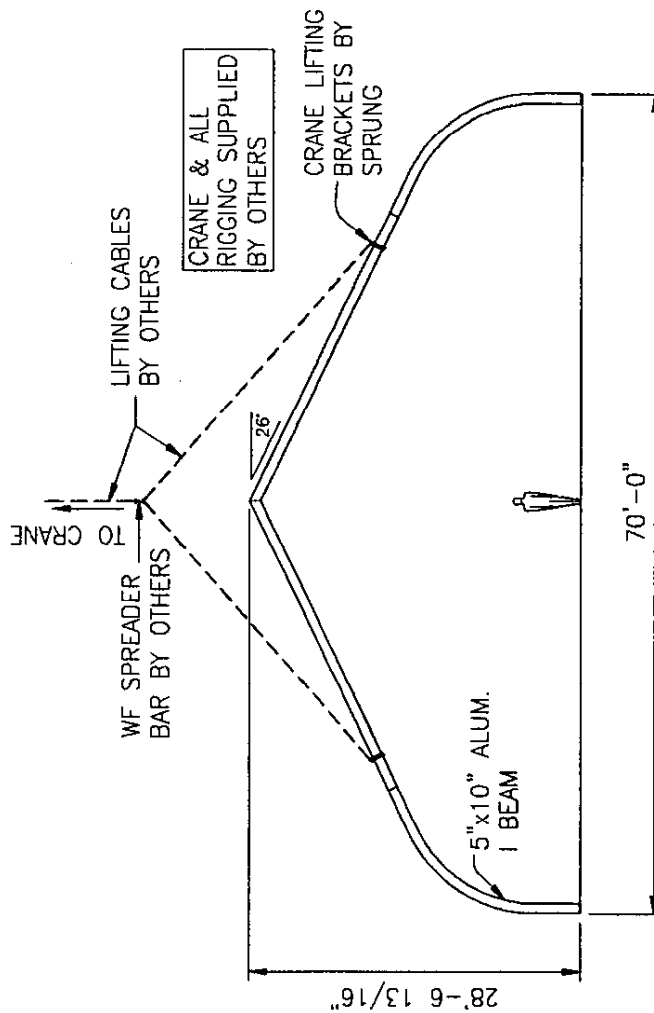
Criteria and definitions shall be in accordance with ASCE-7-93 (BOCA, SBCCI, UBC) and ASCE-7-98 (IBC). The structure shall be designed to meet 80 mph, Exposure C wind as per ASCE -7-93 BOCA, SBCCI, UBC and 100 mph Exposure C, 3 second gusts as per ASCE 7-98 (IBC). In addition, the structure should be designed in accordance



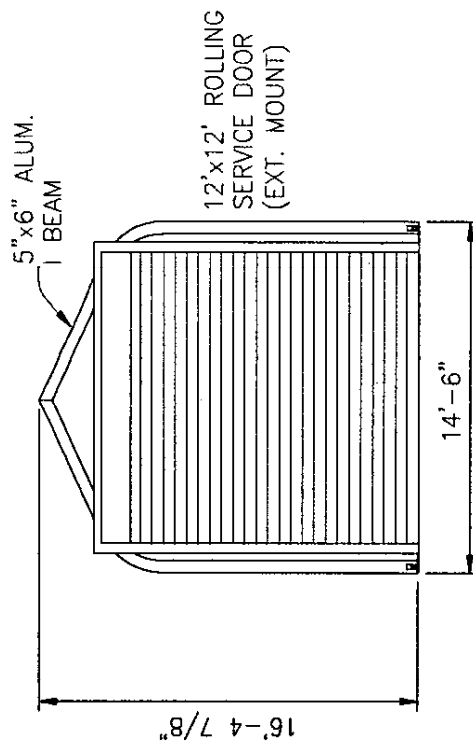
with the City of New Orleans Fire Prevention Department requirements. Any ERAB prepared by the CONTRACTOR must be approved by the CLIENT.



ELEVATION  
1'-20'-0"



CRANE LIFTING SECTION  
1'-16"-0"

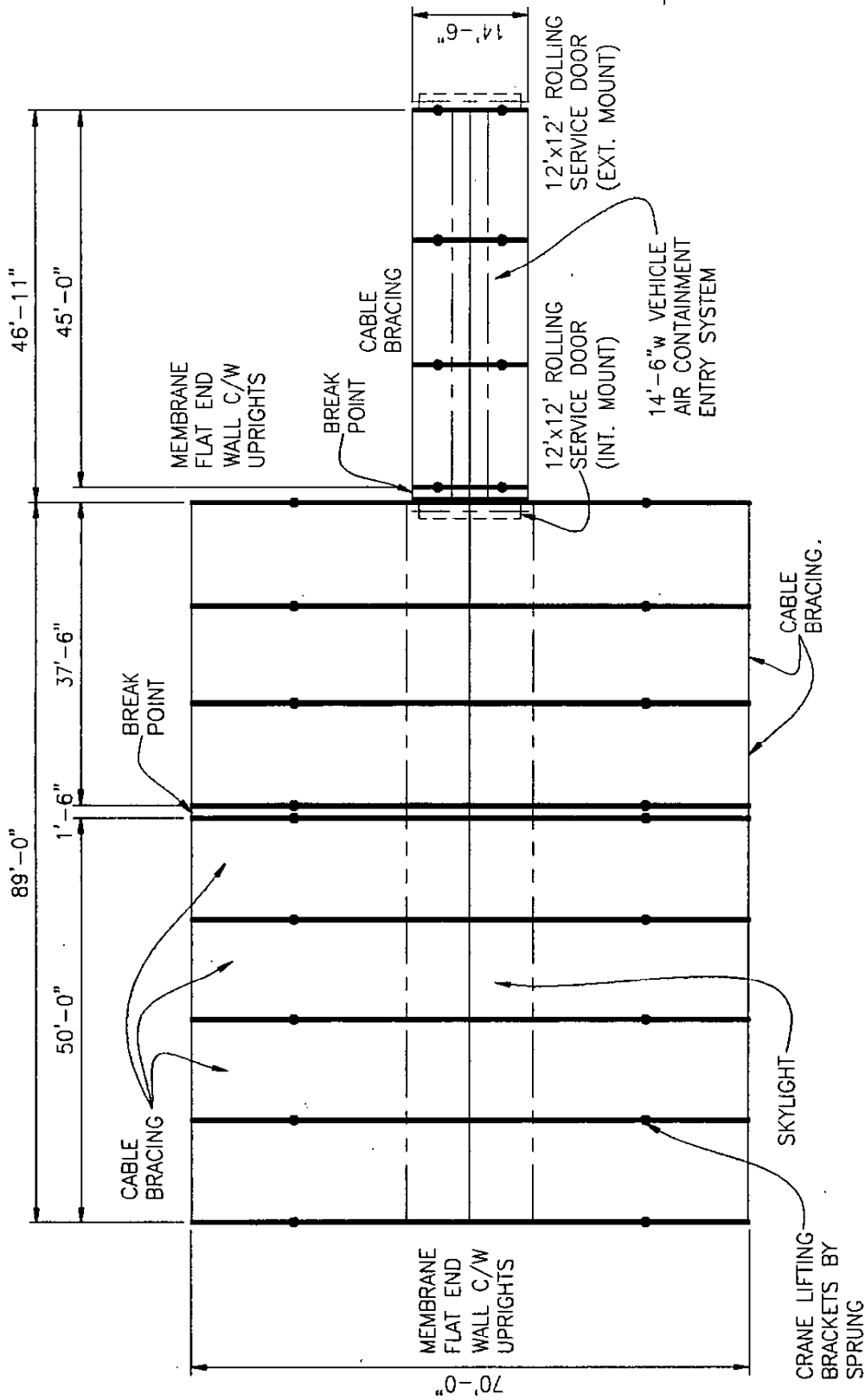


SECTION 14'-6" VESTIBULE  
1/8"=1'-0"


FIGURE C-2A

	<b>SHAW</b> ENVIRONMENTAL 70.0' x 89.0' SOIL COVER		DATE 04/12/2005	SCALE AS NOTED
	<b>INSTANT STRUCTURES®</b> Manufacturers of Engineered Portable Structures TOLL FREE: 1-800-523-9039 OR (408) 243-3771 www.spring.com		DRAWING # F05426B	

SIGNATURE SERIES



**FIGURE C-2B**

 <b>SPRING</b> <b>INSTANT STRUCTURES</b> <small>Manufacturers of Engineered Portable Structures</small> TOLL FREE 1-800-528-8339 OR (403) 243-3571 <a href="http://www.spring.com">www.spring.com</a>	<b>SHAW</b> <b>ENVIRONMENTAL</b> 70.0' x 89.0' <b>SOIL COVER</b>	
	DATE 04/12/2005	SCALE AS NOTED
	DRAWING # F05426A	



SIGNATURE SERIES



### C-3 STORMWATER CONTROL AND PROTECTION

#### Scope

This section covers requirements for the CONTRACTOR to manage the ON-SITE stormwater runoff system to prevent generation of additional contact water that requires treatment. The Work covered in this section includes, but is not necessarily limited to, the following:

- Construction of diversion berms during SITE work, if necessary;
- Diversion of all precipitation collecting on the roof to discharge OFF-SITE;
- Pumping and containing any stormwater and groundwater that may enter the excavation areas.

#### Definitions

**CONTAINMENT** - shall mean control of surface water such that non-contaminated SITE surface runoff water is discharged to the nearest storm drain and liquids that have come into contact with impacted soils are retained ON-SITE, collected and properly disposed.

**DIVERSION BERMS** – shall mean any required construction necessary to contain and divert surface runoff from separate Work Areas (Figure 6-4). Berm height shall vary according to the specific phase of the project and need for control, to divert stormwater runoff.

#### SURFACE WATER CONTAINMENT PROCEDURES:

##### Roof Drains

The CONTRACTOR shall check existing and if necessary, modify the existing Warehouse roof drain systems to collect precipitation and divert it directly to the storm drains located on the surrounding streets. The modification shall include an above-ground gutter to divert the water to the street storm drains. The water shall not pass through the existing sub-surface base drains at the perimeter of these buildings.

##### Asphalt Paving

The CONTRACTOR shall grade various areas of the SITE to be temporarily covered by placing a bed of soil and/or crushed stone as required. Asphalt shall be installed in general accordance with applicable recommendations from The Asphalt Institute (ASI) manual series. Grading of asphalted areas shall be in accordance with the requirements of facilitating runoff to the nearest storm drain and shall be maintained for trafficability

and to avoid ponding of water. The CONTRACTOR shall eventually remove and dispose of the temporary asphalt in a solid (industrial) waste landfill, or in the event the asphalt comes into contact with hazardous materials, dispose of it in an authorized TSD facility.

#### Synthetic Membranes

The CONTRACTOR, when utilizing synthetic membranes, shall follow the manufacturer's recommendations for installation to achieve an impermeable barrier. The CONTRACTOR shall eventually remove the synthetic membranes for disposal at a solid waste landfill, or in the event the synthetic membrane comes into contact with hazardous materials, dispose of it in an authorized TSD facility.

#### Diversion Berms

The CONTRACTOR shall construct, as necessary, temporary excavation berms to contain and divert surface runoff from the separate Work Areas (Figure 6-1). The berms shall be constructed using concrete, asphalt, soil, or synthetic membranes. The berms shall be constructed to contain surface runoff from the open excavations and the truck loading area. The CONTRACTOR shall construct the berm, when utilizing synthetic membranes, by placing sandbags beneath and over the membranes. The CONTRACTOR shall eventually remove the structure for disposal at a solid waste landfill, or in the event the structure or portion thereof comes into contact with hazardous materials, dispose of it in an authorized TSD facility.

#### Surface Water Collection in Excavation Areas

The CONTRACTOR shall containerize all surface runoff collected by the diversion berms, from the excavation and truck loading area(s) for proper disposal. Stormwater that surpasses the confines of the ERAB as well as groundwater that infiltrates into the open excavation shall be pumped out of the enclosure and handled in the same manner as other contact water. The impacted water shall be temporarily stored ON-SITE in two connected retention basins that will facilitate sedimentation, until transported OFF-SITE by the T&D CONTRACTOR.

#### CONTRACTOR'S RESPONSIBILITY

Effective control of surface runoff water is of paramount importance for compliance with APPLICABLE LAW.



During the performance of all WORK and at all times during the duration of the Project, the CONTRACTOR shall employ conscientious and effective means for surface water controls.



## C-4 DECONTAMINATION

### Scope

This section covers the requirements for decontamination of field equipment, PPE, and vehicles used to transport material to an authorized TSD facility, as well as the decontamination requirements for any other materials the CONTRACTOR use to complete the Work. The Work covered in this section includes, but is not necessarily limited to the following:

- Preparation of a Decontamination Plan (which must include, at a minimum, all requirements of Section 5 of the CONSULTANT'S Health and Safety Plan);
- Establishment of decontamination facility(ies);
- Decontamination of all materials, equipment, and transport vehicles: (1) prior to arrival at the SITE, (2) periodically during the Work, and (3) prior to leaving the SITE;
- Containment and disposal of decontamination wastes; and
- Cleanup and removal of the decontamination facility (ies) when work is completed.

### Definitions

DECONTAMINATION – shall mean the cleaning and complete removal of all HAZARDOUS MATERIAL and other contaminating substances, except fuels and oils which are routinely associated with and necessary for equipment operation. For this Project, the majority of decontamination will consist of removing water, soil debris, and sediment.

### Submittals

The CONTRACTOR shall prepare a Decontamination Plan and submit said plan for review by CONSULTANT and CLIENT. A favorably reviewed Decontamination Plan is required prior to the CONTRACTOR'S mobilization to the SITE. The Decontamination Plan shall address the following elements:

- Establishment of ON-SITE decontamination facility(ies);
- ON-SITE decontamination methods to be employed;
- Temporary decontamination and/or stabilization methods to be employed as OFF-SITE work areas such that equipment and materials can be transported to the site for further decontamination;
- Equipment and materials to be used during decontamination activities;

- Methods for containing the decontamination waste and for separating solids and liquids in said wastes; and
- Contingency Plans for incident/emergency situations.

### Materials and Equipment

#### General

Decontamination solutions and equipment shall be suitable to remove all HAZARDOUS MATERIALS and other substances. At a minimum, the CONTRACTOR will provide vacuums, steam cleaning equipment, and high velocity water jetting equipment.

Equipment for vacuuming shall be suitable to vacuum paved surfaces and to initially remove dust from materials and equipment that will require decontamination. Soaps, degreasers, and other cleaning solutions shall be provided as necessary and shall be NON-HAZARDOUS. In no event shall any decontamination solution be used which contains agricultural chemicals or chlorinated solvents.

#### Decontamination Facilities and Equipment

The CONTRACTOR shall provide facilities for the complete containment of decontamination wastes. The decontamination facility shall include a containment area to collect waste generated from decontamination and to prevent waste and HAZARDOUS MATERIAL from contacting and penetrating the ground. The CONTRACTOR shall also provide facilities for the separation of decontamination wastes plus separation of solids from liquid wastes such that solids and liquids are disposed separately.

#### Execution

##### Establishment of Decontamination Facilities

Prior to beginning the remedial activities work, the CONTRACTOR shall establish and make ready for operation the decontamination facility(ies) consistent with the Decontamination Plan.

##### Decontamination

The decontamination process shall include the removal of accumulated dirt and other contamination from the equipment and materials while said equipment and materials are physically located in the decontamination facility.

Methods shall conform to the Decontamination Plan and, at a minimum, shall consist of vacuuming, steam cleaning, high-pressure washing, or a combination of these methods. Non-phosphate cleaning solutions shall be used as needed to thoroughly remove contaminants.

The CONTRACTOR shall, at a minimum, decontaminate the following materials and equipment:

- Every item of any sort to be used by the CONTRACTOR at the SITE or OFF-SITE Work Area(s), prior to mobilization to the SITE;
- Each roll-off box destined for an authorized TSD facility prior to leaving the SITE and prior to departure from the TSD facility;
- Equipment used throughout the remedial activities;
- All items entering the Exclusion Zone(s) and upon leaving the Exclusion Zone(s), as required to prevent spreading hazardous materials into or on non-impacted areas;
- Every item of any sort mobilized by the CONTRACTOR to the SITE and prior to demobilization from the SITE;
- All Area(s) of the SITE used by the CONTRACTORS during the project; and
- The Enclosed Remedial Activities Building.

To the extent practicable, the CONTRACTOR shall initially vacuum materials and equipment and otherwise use vacuums such that the volume of decontamination wastewater generated is minimized.

The CONTRACTOR shall afford the CONSULTANT, CLIENT, or OWNER the opportunity to observe each decontaminated transport vehicle prior to the vehicle's arrival to the SITE and departure from the SITE. This shall include observation of under carriage, tarped cover and any other part of the transport vehicles.

Additionally, the CONTRACTOR shall ensure that each transport vehicle is decontaminated prior to departing from the authorized TSD facility.

#### Decontamination Wastes

Decontamination waste water shall be collected, separated from solids, and disposed with the waste water generated during the remedial activities. The CONTRACTOR shall minimize the use of water to be used for decontamination activities to the extent



reasonable. Liquids collected from the decontamination activities may be used as dust suppressant during the excavation activities completed under the ERAB.

Solids resulting from decontamination operations shall be considered hazardous and shall be collected and disposed along with collected soils and debris that are designated for treatment, storage and/or disposal at an authorized TSD facility.

Contamination of Non-Impacted Areas

If the CONTRACTOR contaminates areas presently not impacted or recontaminates areas where remedial work has been completed, the CONTRACTOR shall be solely responsible for all costs incurred in removing such contamination. This includes, but is not limited to, contamination caused by fugitive dust, wheel tracking, accidental spills, water runoff, and water runoff.



## C-5 MONITORING WELL PLUGGING AND ABANDONMENT

### Scope

This section covers requirements for the plugging and abandonment of applicable monitoring wells ON-SITE. The work covered in this section includes, but is not necessarily limited to, the following:

- Pre-approval for abandonment and plugging;
- Fill material requirements; and
- Procedure for plugging abandoned wells.

### Definitions

**BENTONITE** – A highly expansive clay consisting predominantly of montmorillonite.

**BENTONITE GROUT** – A high solids well sealing material composed of predominantly sodium montmorillonite clays.

**CEMENT-BENTONITE GROUT (SLURRY)** – A mixture in the proper proportions of cement, bentonite and water, consisting of not more than seven percent (7%) bentonite by dry weight of cement and a maximum of ten (10) gallons of water per sack (94 pounds) of cement.

**GEOTECHNICAL BOREHOLE** – An exploratory borehole drilled, augered, bored, cored or driven to obtain soil and/or groundwater samples to be analyzed for chemical and/or physical properties.

**MONITORING WELL** – Any permanent cased hole that is drilled, augered, bored, cored, driven, washed, dug, jetted or otherwise constructed to obtain hydrologic and water quality data, usually installed at or near a known or potential source of groundwater contamination.

**TREMIE PIPE** – A device, usually a small diameter pipe, that carries cement bentonite grout slurries to the bottom of the hole and which allows pressure grouting from the bottom up without introduction of appreciable air pockets.



### Materials and Equipment

Low permeability cement-bentonite slurry should be used to plug and abandon (P&A) wells. The slurry is a mixture of cement, bentonite, and water consisting of not more than eight (8) percent bentonite by dry weight of the cement and a maximum of ten (10) gallons of water per sack (94 pounds) of cement.

Grout materials should be placed by a rigid, side discharge tremie pipe, using a pump specifically designed and manufactured to pump grout materials. The use of pumps associated with the recirculation system of the drilling equipment is not allowed. Rig pumps may not be able to accommodate the weight or viscosity of the grout and may contaminate the grout unless decontaminated after each use.

### Execution

P&A activities will be performed in accordance with the LDEQ/ Louisiana Department of Transportation and Development (LDOTD) Construction of Geotechnical Boreholes and Groundwater Monitoring Systems Handbook (December 2000). All ON-SITE Monitoring Wells to be Plugged and Abandoned are located on Figure 2-2.

LDOTD and LDEQ approved methods (LDEQ and LDOTD, 2000) will be followed to seal each monitoring well and borehole so as to eliminate the possibility of migration of fluids into and within the abandoned well. A LDOTD licensed water well contractor will be required to perform the well P&A activities.

P&A activities will begin with the removal of all surface completion components. An attempt will be made to pull each of the ON-SITE monitoring wells. The attempt to pull the casing will proceed so as not to shear or damage the well below grade. If pulling of the monitoring well is successful, the remaining borehole will be sealed using the tremie pump-down method.

Prior to the attempt to pull the well, a cement-bentonite slurry (in accordance with specification below) will be placed inside the well casing to provide a seal in the event that the well pipe separates during the well pulling activities. If pulling is not successful, the well(s) will be inspected to assure that an adequate annular seal is intact within the annulus of the well. The inside of the well casing will be tremie grouted using the pump-down method, by filling the well casing so as to completely seal the entire interior of the well casing and squeeze the grout into any existing annular void space.

All wells will be sealed using the tremie pump-down method. As described by the LDOTD and LDEQ, this method is implemented by placing tremie pipe down the casing or borehole and pumping grout into the hole from the bottom of the hole to the top grade surface. Twelve hours will be required to observe settling of grout in the hole, if the grout settles more than six inches below grade then the hole will be topped-off with grout to surface grade.

The grout to be used will be a 5 percent mix cement/bentonite slurry, which will consist of approximately one sack (94 pounds) of Type I Portland cement, 5 percent bentonite powder by weight (approximately 4.7 pounds), and approximately 8.5 gallons of potable water. The mixture will be mixed to a lump-free consistency and tremied from the bottom to top of each borehole (LDEQ and LDOTD, 2000).

Following the P&A field activities, Water Well Plugging and Abandonment Forms (DOTD-GW-2) will be completed by the licensed water well CONTRACTOR.



## C-6 STORM DRAIN LINE FLUSHING

### Scope

This section describes the guidelines for the removal of sediment from and the flushing of the storm drain lines on Lowerline and Burdette Streets as presented on Figure 6-3 OFF-SITE work areas. The Work covered in this section includes, but is not limited to the following:

- Preparation and submittal of the requisite Operations Plans;
- The method to be used to clean and flush the stormdrain systems shall be approved by the S&WBNO before starting the drain clean up;
- Installation of temporary surface water controls (berms, collection basins, etc.) at each ON-SITE and OFF-SITE work area, as required, to contain possible spillage and to minimize the entrance of precipitation, via surface water run-off into the storm drain system through the manholes, catch basins and drop inlets;
- Removal of sediments from storm drain manholes, catch basins and drop inlets;
- Removal of sediments from storm drain lines by high velocity water jetting or an equivalent method;
- Pumping and containment of impacted water, used for flushing, into the ON-SITE containers;
- Containerization and stabilization of waste at the OFF-SITE work area(s) and transportation to the designated ON-SITE waste storage area(s); and
- Restoration of OFF-SITE work area(s) to their original pre-Remediation condition.

### Definitions

CONTAINERIZATION – shall mean the trapping and temporary storage of any substances removed from the storm drain lines during pressure washing or equivalent activities.

### Submittals

The CONTRACTOR shall prepare an Operations Plan that includes a detailed description of the methods and procedures to be used for removal of sediments from the storm drain systems and waste containment and segregation. The Plan shall be submitted for review and approval by the CONSULTANT, CLIENT and OWNER. A favorably reviewed Plan is required prior to the CONTRACTOR'S mobilization to the SITE. At a minimum, the Plan shall address the following elements:

- Method(s) and equipment used for removal of sediments from storm drain manholes, catch basins and drop inlets;
- Equipment and procedures used for removal of sediments from storm drain lines by high velocity water jetting;
- Method(s) and equipment used for temporary segregation, containerization and stabilization at the OFF-SITE Work Area(s) of all materials generated from the sediment removal activities;
- Method(s) and equipment used for transportation of wastewater and non-wastewater from OFF-SITE Work Area(s) to the SITE;
- Method(s) and equipment used for control and containment of surface water; and
- Contingency Plan for incident/emergency situations that may arise during the implementation of the above activities.

#### Materials and Equipment

Sediment removal equipment shall be suitable to remove all sediment and associated debris from the storm drain lines while insuring that the materials are not spilled on to the surrounding streets. Spill containment equipment shall be provided and operated by the CONTRACTOR in the event that a spill incident occurs.

All sediment removal equipment and containerization equipment must be moved to the SITE at the completion of each work day. Equipment shall be mobile, in order to be transported from the SITE to the OFF-SITE work area(s).

#### Execution

The storm drain systems where sediments will be removed are located beneath Lowerline Street, and Burdette Street, as shown on Figure 6-3. Using a method proposed by the CONTRACTOR and approved by the CLIENT, the CONTRACTOR shall remove all sediment and debris contained within each catch basin, drop inlet, and manhole included as part of each storm drain system. Also, using high velocity water jetting the CONTRACTOR shall remove all sediment and debris contained within each storm drain system. The work will be completed in accordance with the methods and procedures outlined in the requisite CONTRACTOR'S Operations Plan. Prior to initiating removal of sediments and flushing of the drain line, other drain lines entering the man holes may be temporarily plugged to isolate the lines being cleaned. The plugs will be constructed and installed in accordance with the guidelines established by the S&WBNO. All personnel, prior to entering manholes will be trained and qualified for confined space entry.

After the CONTRACTOR has completed the storm drain sediment removal activities for a system, or segment of a system, where applicable, and 24 hours prior to the inspection, the CONTRACTOR shall notify the CLIENT and ENGINEER that the system or segment of the system is ready for inspection. If, in the opinion of the CLIENT and ENGINEER, additional sediments should be removed from the system or segment of system inspected, the CONTRACTOR shall endeavor the removal of such sediments until the system is accepted by the CLIENT and ENGINEER based on the results of the final inspection. The CONTRACTOR shall not commence removal of sediments from any other system or other segment of the system until the system where sediments are currently being removed is accepted by the CLIENT and ENGINEER.



## C-7 EARTHWORK

### Scope

This section covers the requirements for excavating soil from the Work Areas shown on Figure 6-3 and to a depth not to exceed 10 feet bgs and backfilling and compacting excavated areas. The Work covered in this section, includes, but is not necessarily limited to, the following:

- Excavating soil for transport and disposal;
- Segregating and loading soil and debris designated for an authorized TSD facility disposal into roll off boxes for transport;
- Control of water;
- Shoring, sheeting, bracing, and sloping of excavation as necessary for safety;
- Interruptions to the excavation process while the CONSULTANT samples and analyzes soil at the base and sides of the excavations in order to ascertain the areas and depths of continued excavation;
- Measurement and survey of the excavation boundaries and depths;
- Procurement of clean imported fill (borrow materials); and
- Backfilling and compacting excavated areas with clean imported fill.

### Definitions

**RELATIVE COMPACTION** – means the ratio, in percent, of the as-compacted field dry density to the laboratory maximum dry density as determined by ASTM D-1557 (Modified Proctor). Corrections for oversized material may be applied to either the as-compacted field dry density or the maximum dry density, as determined by the CONSULTANT.

**OPTIMUM MOISTURE CONTENT** – means the moisture content corresponding to the laboratory maximum dry density as measured in the herein before referenced ASTM standard.

**WELL-GRADED** – means a mixture of particle sizes that has no specific concentration or lack thereof of one or more sized. Well-graded does not define any numerical value, that must be placed on the coefficient of uniformity, coefficient of curvature, or other specific grain size distribution parameters. Well-graded is used to define a material type that, when compacted, produces a strong and relatively incompressible soil mass free from detrimental voids.

### CLIENT'S Representation

The CLIENT anticipates that, at the time of excavation, groundwater elevations could be at or above the base of the excavation. Most Underground Facilities are expected to be partially or totally located below the groundwater table. Groundwater elevation above the base of the excavation that result in increased costs for excavation or groundwater control will not form the basis of a CHANGE ORDER.

The CLIENT does not warrant that surface water will not enter excavations, either directly through precipitation, directly through surface runoff, or indirectly through groundwater infiltration. Control and removal of surface water will be the responsibility of the CONTRACTOR and will not constitute the basis of a CHANGE ORDER.

Borings performed in and near the locations of the excavations were performed primarily to collect samples for delineation of chemical concentrations in soil and structures at the SITE. Samples were occasionally obtained using samplers and sample hammers which are different than normal Standard Penetration Test (SPT) procedures. The CLIENT does not represent that the information contained in the site boring logs is complete or sufficient to assess the difficulty of excavation or to assess the requirements for shoring, sheeting, bracing, or sloping.

### Work Hours

The CONTRACTOR shall confine earthwork activities to 7:30 AM to 7:30 PM, Monday through Saturday, Holidays excluded. If acceptable to the CLIENT, the CONTRACTOR may conduct limited activities outside work hours so long as excessive dust, noise and other disturbances are not produced.

### Additional Safety Responsibilities

The CONTRACTOR shall select, install, and maintain shoring, sheeting, bracing, and sloping as necessary to maintain safe excavations. The CONTRACTOR shall be solely responsible for ensuring such measures; (1) provide necessary support to the sides of excavations; (2) prevent movement or damage to structures, pavement, utilities, and facilities; (3) provide safe access for the CONSULTANT'S sampling and testing from within the excavation; (4) provide safe access for backfill, compaction, and compaction testing; and (5) otherwise maintain excavation in a safe manner that shall not endanger

property, life, health, or the WORK SCHEDULE. All earthwork shall be performed in strict accordance with APPLICABLE LAW, including local ordinances and applicable OSHA requirements.

Due to the requirements of the CONSULTANT'S sampling and analysis during excavation, and due to the sequencing and conduct of the CONTRACTOR'S excavation and backfilling operation, the CONTRACTOR shall anticipate that excavations may remain open for a minimum of four (4) days. The CONTRACTOR shall supply and maintain all safety devices needed for open excavations that are not located within the ERAB.

#### Materials and Equipment

##### 1) Excavated Material

Material removed from the excavations shall be designated for either industrial solid landfill or authorized HAZARDOUS WASTE TSD facility as determined by the CONSULTANT or CLIENT. The CONSULTANT and CLIENT will provide information on all known and available data including: (1) chemical results of borings that have been completed and (2) additional samples and analyses that the CLIENT and/or CONSULTANT perform prior to and during excavation.

##### 2) Imported Fill

In general, imported fill will be used to replace the soil that was excavated and disposed. Imported fill (borrow materials) shall all requirements set forth in the Site Restoration Specification, Appendix C-11.

##### 3) Compaction Equipment

Compaction equipment shall be of suitable type and adequate to obtain the densities specified. Compaction equipment shall be operated in strict accordance with the manufacturer's instructions and recommendations. Equipment shall be maintained in such condition that it will deliver the manufacturer's rated compactive effort. If inadequate densities are obtained, larger and/or different types of additional equipment shall be provided by the CONTRACTOR. Hand-operated equipment shall also be capable of achieving the specified densities. CONTRACTOR shall provide a list of proposed and alternative equipment prior to mobilization.

#### 4) Moisture Control Equipment

Equipment for applying water shall be of a type and quality adequate for the Work, shall not leak, and shall be equipped with a distributor bar or other device to assure uniform application. Equipment for mixing and drying out material shall consist of blades, discs, or other appropriate equipment. CONTRACTOR shall provide a list of proposed and alternative equipment prior to mobilization.

### Execution

#### 1) Locations and Depths of Excavation

Areas and depths of excavation are indicated on Figure 6-4. Actual areas and depths will be determined by the prevailing depth to the comparison of post excavation confirmatory samples to RALs and the location and depth of Underground Facilities. The excavations will not extend deeper than 10 feet bgs. The CONTRACTOR shall complete the excavations in the Work Areas shown on Figure 6-4 to the required depths, as directed by the CONSULTANT or CLIENT. The CONTRACTOR shall be capable of excavating at least to a depth of 10 feet below ground surface, as required, and should be prepared to provide subsurface dewatering systems or major excavation support systems.

#### 2) Progress of the Excavations and Coordination with the ENGINEER'S Testing

The CONTRACTOR shall excavate the areas to the depths determined by the CONSULTANT or CLIENT (Figure 6-4). All areas must initially be excavated to a depth of 4.5 feet, where samples must be taken according to the Site Sampling Plan. Pre-Remedial Design sampling indicates that subsurface soil must be excavated to 10 feet in isolated areas, near Boring B-4: MW-5S and Tanks 1 and 2, identified on Figure 2-2. Once the excavations are complete to the required depths post excavation, confirmatory samples will be collected and analyzed. Also, the sampling grids will be surveyed by a professional land surveyor. The CONTRACTOR shall await completion of these activities prior to backfilling.

#### 3) Dust and Vapor Control and Coordination with Air Monitoring

The CONTRACTOR shall conduct dust and vapor control measures during excavation, stockpiling, transport vehicle loading, and other earthwork activities in accordance with requirements specified in the Air Monitoring Plan. The CONTRACTOR shall anticipate



the need to use commercial foams to control vapor and dust suppressants to control airborne particles.

The CONSULTANT will regularly conduct air monitoring in accordance with the Air Monitoring Plan (Appendix E). If sampling reveals organic vapor concentrations exceeding the levels identified in the Air Monitoring Plan, the CONTRACTOR shall modify the control measures consistent with the Air Monitoring Plan control measures.

#### 4) Control of Water

The CONTRACTOR shall provide temporary diversion ditches, berms, and collection facilities in accordance with APPENDIX C-4 "Stormwater Control and Protection".

The CONTRACTOR shall provide and operate equipment to keep excavations free of water during excavation, during backfill, and at such other times as necessary for safe and efficient execution of the Work. The CONTRACTOR shall avoid settlement or damage to adjacent property from dewatering operations, if employed. The CONTRACTOR shall dispose of water in accordance with these specifications and with APPLICABLE LAW.

#### 5) Backfill

Prior to starting backfill operations, the CONTRACTOR shall decontaminate the compaction equipment. The CONTRACTOR shall backfill with imported fill to original grade or the alternate grade required to maintain CONTRACTOR'S surface water control system. The CONTRACTOR shall place the imported fill in horizontal lifts not exceeding 12 inches in loose thickness.

#### 6) Compaction

The CONTRACTOR shall compact each lift of imported fill to at least 90 percent relative compaction. The CONTRACTOR shall compact all materials by mechanical means. Flooding or jetting shall not be permitted. If compaction tests indicate that relative compaction or moisture content is not as specified, the CONTRACTOR shall terminate material placement and corrective action shall be taken prior to continued placement.

#### 7) Moisture Control

During all compacting operations, the CONTRACTOR shall maintain optimum practicable moisture content so that the specified relative compaction is obtained in each lift as the lift is compacted.

#### 8) Field Density and Moisture Tests

Either the CONSULTANT or a testing laboratory retained by the CONSULTANT will determine in-place density and moisture content by any of, or a combination of, the following methods: ASTM D-2922, D-1556, D-2216, D-3017, or other methods selected by the CONSULTANT. The CONTRACTOR shall cooperate with this testing work by leveling small test areas designated by the CONSULTANT, and upon test completion, backfill and compact the test areas. The frequency and location of testing will be determined solely by the CONSULTANT. The CONSULTANT may test any lift, at any time location, or elevation.

As the CONTRACTOR nears completion of compaction of each lift, the CONTRACTOR shall notify the CONSULTANT so that the CONSULTANT is afforded the opportunity to test each lift. To the extent practicable, the CONTRACTOR shall provide the CONSULTANT at least four hours advance notification.

#### 9) Contamination of Non-Impacted Areas

If the CONTRACTOR contaminates areas presently not impacted or recontaminates an excavated area during subsequent construction activities, the CONTRACTOR shall be solely responsible for all costs incurred in removing such contamination. This includes, but is not limited to, contamination caused by fugitive dust, wheel tracking, accidental spills, water runoff, water runoff, and erosion.

The CONTRACTOR shall take care in the delivery, spreading and compacting of imported fill. Equipment working the imported fill which comes in contact with contaminated materials shall be decontaminated before performing any further work on the backfill.

#### 10) Transport Vehicle Loading

The contractor shall promptly load excavated soil, that the CONSULTANT or CLIENT designates for disposal at either an industrial solid waste landfill or an authorized HAZARDOUS WASTE TSD facility, into roll off boxes that must be properly sealed,



decontaminated, and stored. To the extent practicable, the CONTRACTOR shall not allow excessive amounts of excavated soil, to collect at the SITE. The roll off boxes must be stored in the Warehouse building until they are transported OFF-SITE, where they will be disposed of at a TSD facility. The soils shall not be transported without the appropriate manifests. The CONTRACTOR shall be responsible for coordinating transport vehicle loading and soil disposal with excavation activities and shall bear any costs associated with transport vehicle standby.

#### 11) Final Grading

The CONTRACTOR shall grade, compact, and smooth areas disturbed by the CONTRACTOR'S operations to comply with the Site Restoration Plan (Appendix C-11). The CONTRACTOR shall maintain positive slopes to drainage courses unless directed otherwise by the CLIENT. In general, the CONTRACTOR shall provide final grading.

## C-8 UNDERGROUND FACILITIES STRUCTURE REMOVAL

### Scope

This section covers requirements for the closure, removal, and disposal of underground storage tanks, connect drain lines, and concrete sumps (monitoring wells are addressed in Appendix C-5). The WORK described in this section includes but is not limited to excavation, dewatering, providing regulatory required reports, and backfilling. See Figure 6-1 for the location of the following underground structures that are scheduled for removal:

- Tank 1;
- Tank 2;
- Sump 5;
- Sump 6; and
- All associated tank piping and concrete drain lines.

### Materials and Equipment

Earth moving equipment/excavators will be used to excavate soil covering and surrounding underground facility structures to be removed. Digging and lifting of the underground structures should be conducted with extreme caution to avoid metal to metal (if any underground structures are metal) sparking in the enclosed, volatile environment. The equipment will be the same utilized during all other remediation activities.

Roll-off boxes/or equivalent will be used to contain and transport excavated soil as well as the debris generated from the removal of underground facilities.

### Execution

Excavation of underground facilities should be carried out using methods and equipment to remove soil to minimize disturbance to areas beyond the limits of the excavation area. Water generated by dewatering during excavation required for removal of tanks or piping, surface water collected in open excavation, or water used for washing equipment shall be collected and temporarily stored on-site until transported to the deep well disposal facility, if deemed necessary, or used ON-SITE for dust control..

Asphalt pavement and limestone cover removed during excavation activities shall be washed if any soil adheres after it is removed, but before stockpiling. Water used for cleaning, if needed, will be temporarily stored on-site before being transported to the deep well disposal facility. Removed asphalt and limestone is not a hazardous waste, therefore will be transported to an industrial solid waste landfill, if not stockpiled ON-SITE for emergency usage.

All non-product piping, except vent piping, are to be removed. Tank openings should be plugged so that vapors will exit through vent piping during the vapor freeing process. One plug shall have a minimum one eighth (1/8) inch vent hole.

The following underground structures are to be removed: Concrete drain lines along southwest side of the warehouse building, Sump 6, Sump 4, and Sump SC-1 (Figure 2) along with the drain lines between the sumps. Additionally, Tank 1 and Tank 2 (Figure 2) are to be excavated and properly disposed.

After Tank 1 and Tank 2 are removed, soil testing must be conducted beneath the surface that held the tanks. Soil shall be sampled according to the methods detailed in the Sampling and Analysis Plan (SAP).

## C-9 WAREHOUSE DEMOLITION

### Scope

This section covers requirements for the controlled take down of the Warehouse Building. The roofing, piping, and other associated Warehouse Demolition debris may involve both Asbestos Containing Material (ACM) and uncontaminated materials (NON-HAZARDOUS MATERIALS). The Work covered in this section includes, but is not necessarily limited to, the following:

- Stabilization of structure;
- Vacuuming of roof debris;
- Management of potential ACM roofing material;
- Demolition of designated structures;
- Coordination with T&D CONTRACTOR;
- Coordination with the independent CONSULTANT'S air monitoring program;
- Size reduction of demolition debris as necessary for loading into transport vehicles; and
- Loading of debris into transport vehicles.

### Definitions

DEMOLITION (DEMOLISH) – the controlled breaking apart, knocking down, digging up, and removal of every part of the structures designated for demolition. The complete removal of foundation, floor slabs, walls, framing, roofs, all other above-grade members, appurtenant buried piping, and other miscellaneous underground facilities as specified in the RD WORK PLAN.

### Client's Representation

The CLIENT makes no representation with respect to the following. The CONTRACTOR shall be solely responsible to make SITE specific investigations to determine conditions and/or include, as appropriate, contingencies to cover uncertainties with respect to the following:

- Thickness of floor slabs, and depths of structural foundations;
- Type and amount of reinforcing steel contained within foundations, stem walls, columns, walls, and other above grade building components;
- The plan dimensions of the structures scheduled for demolition (the CONTRACTOR shall not scale these dimensions from the drawings); and



- Width, height, thickness, and composition of all above-grade building components.

#### Coordination with Air Monitoring

The CONTRACTOR shall demolish the entire warehouse building including foundations and underground facilities. This is anticipated to present a worst-case condition for potential creation of dust. Dust and dirt rising during demolition operations shall be suppressed by water spraying or another more practical, approved method. The CONTRACTOR shall arrange for air particulate monitoring to begin concurrently with demolition.

#### Execution

Prior to demolition activities, the facility's existing conditions shall be recorded by the CONTRACTOR, in the presence of a representative of the CONSULTANT, showing the condition of structures and other facilities adjacent to areas impacted by demolition. The CONTRACTOR shall also prepare and submit a detailed Demolition Plan of the work to be completed and the areas impacted, to the CLIENT and CONSULTANT prior to mobilization. Additionally, the CONTRACTOR shall obtain all necessary permits for demolition before activities begin.

Stabilization: Shoring and bracing or other support shall be provided as necessary to prevent movement, settlement, or collapse of a structure to be demolished and of facilities to remain that are adjacent to a structure to be demolished.

CONTRACTOR shall, at a minimum, abide by the CONSULTANT'S Health and Safety Plan.

The CONTRACTOR shall clearly demarcate on the ground the Construction Work Limits and other boundaries delineated in the CONTRACTOR'S H & S Plan, as necessary for execution of the project. This shall include the use of appropriate tape, stakes, flagging, spray paint, or temporary fencing. The CONTRACTOR (Subcontractor) shall confine all activities on the SITE to property boundaries of the SITE.

The roof gravel must be vacuumed before any demolition activities begin. The roof gravel must be contained and properly disposed of at a TSD facility, with other potentially contaminated debris.

In demolishing the WAREHOUSE, the CONTRACTOR shall perform breaking and debris size reduction as necessary for loading into transport vehicles. The CONTRACTOR shall completely remove all components of the structures, including: foundations, floor slabs, and buried piping. The CONTRACTOR shall not allow the demolition debris to contaminate the underlying soil.

The CONTRACTOR shall coordinate with the T & D CONTRACTOR on loading all demolition debris into transport vehicles for disposal. Final disposal of debris at the industrial solid waste facility will be carried out by the T & D CONTRACTOR. The CONTRACTOR shall promptly load demolition debris into roll-off bins, preventing excess debris from accumulating in work areas.

If the CONTRACTOR contaminates areas presently not impacted or recontaminates areas during subsequent construction activities, the CONTRACTOR shall be solely responsible for all costs incurred in removing such contamination.

Demolition shall be conducted between the hours of 7:30 AM to 7:30 PM, Monday through Saturday, Holidays excluded. If permissible by local regulations and acceptable to the CLIENT, the CONTRACTOR may conduct limited activities outside these work hours so long as dust, noise, or other disturbances are not produced.

## C-10 TRANSPORTATION AND DISPOSAL

### Scope

This section covers requirements for the transportation and disposal of NON-HAZARDOUS and HAZARDOUS WASTES from the site located at 7700 Earhart Boulevard, New Orleans, Louisiana (SITE) to the industrial landfill(s) and authorized TSD facility (ies), respectively. Facilities to receive waste shall be approved by the CLIENT. The CLIENT'S approval will be partially based on the proposed prices for transportation and disposal. The responsibilities of the TRANSPORTATION AND DISPOSAL CONTRACTOR (T&D CONTRACTOR) covered by this section include, but are not necessarily limited to the following:

- Transportation of NON-HAZARDOUS and HAZARDOUS WASTE to the designated disposal facilities in conformance with all applicable Federal, DOT, state, and local rules and regulations;
- Disposal of the material in conformance with all applicable Federal, DOT, state and local rules and regulations at a disposal facility approved to accept and dispose of this type of waste material;
- Provision of the open-top, roll-off boxes (unlined so they can be inspected), as well as associated bows, tarps and liners, in which WASTE will be transported;
- Provision of pre-printed manifests with unique identification numbers for each roll-off;
- Supplying all required placards;
- Ensuring that all trucks and drivers meet all DOT regulatory requirements;
- Receipt, unloading, and disposal of NON-HAZARDOUS WASTE originating from the SITE;
- Receipt, unloading, and disposal of HAZARDOUS WASTE originating from the SITE;
- Submittal of a Transportation Plan including contingency plans;
- Determination of the weight and/or volume of material contained in each shipment;
- Preparation of necessary manifests and appurtenant documents;
- Ensuring that transport vehicles have been cleaned and/or decontaminated before leaving the SITE with a shipment as required, and after unloading the shipment and prior to departing from the disposal facility;
- Ensuring the conformance of transport vehicles to authorized transportation routes.
- Coordination with the disposal facility(ies) – approved by the CLIENT;
- Coordination of all transportation and disposal activities with the CLIENT'S and/or CONSULTANT;

- Control of traffic as necessary for safety.

Additionally, the responsibilities of the CONTRACTOR will include the following:

- Providing an on-site representative to oversee all ON-SITE work;
- Inspection of the bins upon delivery to the site;
- Handling of the roll-off bins while on site;
- Tarping and washing of the outside of the bins
- Loading of soils into the roll-off bins;
- Sanitary facilities, as required;
- Staging of the bins in the designated staging area;
- Providing site access during the project;
- Site Safety Officer to monitor work conditions.

#### Definitions

**NON-HAZARDOUS WASTE** – means waste that can be disposed of in an industrial solid waste landfill.

**HAZARDOUS WASTE** – means any solid, semi-solid, collected surface water, and non-reusable decontaminated water, liquid, and/or contained gaseous material which has been designated for disposal in an authorized TSD facility, and which has the same general physical, chemical, and biological characteristics, and properties described on Waste Profile Sheets executed by the CLIENT. **HAZARDOUS WASTE** shall also mean, as applicable, any containers within which the material is placed. **HAZARDOUS WASTE** shall also mean, as applicable, used disposable personal protective equipment such as respirator cartridges, gloves, tyvek suits, etc., that is generated at the SITE. In general, three types of **HAZARDOUS WASTE** are anticipated: (1) excavated soil, (2) demolition debris generally consisting of concrete, brick, mortar, timber, steel, sheet metal, and PPE, and (3) liquids and non-aqueous phase liquids (NAPLs).

**NON-CONFORMING HAZARDOUS WASTE** – means **HAZARDOUS WASTE** which are significantly different from those represented on the Waste Profile Sheets and:

- Which materially increases the hazard associated with the handling, treatment, or disposal of the material; or
- Which the disposal facility is not licensed or permitted to accept.

### Transportation and Disposal Plan

Upon award and prior to the mobilization to the site by the CONTRACTOR, the T&D CONTRACTOR shall submit a Transportation and Disposal Plan which contains or addresses the following elements:

- Routes from the SITE to each potential industrial landfill;
- Routes from the SITE to each potential authorized TSD facility;
- Methods, materials, and equipment for sealing and securing materials in transit so as to prevent spillage or release of dust, vapors, and contained material;
- Description of routine safety measures to be conducted throughout the Project, including such items as notification of emergency service organizations along the transportation routes and safety inspection of vehicles; and
- Description of the contingency and emergency response measures to be conducted in the event of an accident or release.

### Materials and Equipment

#### 1) Transport Loading Area

Transportation vehicles shall be loaded in an area on the SITE as specified in accordance with the phased Work sequence illustrated on Figure 6-4. Prior to start of transport loading activities and periodically throughout the Project, as needed to prevent dust control water from entering underlying soil, the CONTRACTOR shall seal cracks in the asphalt or Portland cement concrete.

#### 2) Containment During Transport

The T&D CONTRACTOR shall provide tarps and disposable liners, in accordance with applicable Louisiana Transportation Licensing requirements.

#### 3) Transportation

Waste shall not be modified or tampered with during transport. It is strictly forbidden to perform any acts which increase or decrease the weight of the waste during transport, before final weight determination using certified scales.

#### 4) Scales

The CONTRACTOR may provide ON-SITE scales for determining the weight of removed waste. The T&D CONTRACTOR shall also secure the use of certified scales at the disposal facility if such do not currently exist at the disposal facility.

5) Acceptance and Rejection

The T&D CONTRACTOR shall accept and dispose of all NON-HAZARDOUS and HAZARDOUS WASTE and shall immediately notify the CLIENT or CONSULTANT of any NON-CONFORMING HAZARDOUS WASTE or improperly manifested shipments.

6) Air and Noise Pollution

To the extent practicable, transport vehicles shall be selected, operated, and maintained so as to minimize air and noise pollution. In no case shall transport vehicles cause air and noise pollution in violation of APPLICABLE LAW(S) or to such an extent that nuisance conditions are created.

Execution

1) Transporter Loading & Unloading

The T&D CONTRACTOR shall coordinate transporters and disposal facilities so that both may conduct their respective operations efficiently and safely. Transporters and disposal facilities shall cooperate to achieve the same results.

2) Decontamination

Transport vehicles shall be decontaminated prior to leaving the SITE, in accordance with other requirements of the REMEDIAL DESIGN. The T&D CONTRACTOR shall notify the CLIENT or CONSULTANT prior to the departure of each transport vehicle from the SITE so that the CLIENT or CONSULTANT may observe each departing transport vehicle. The T&D CONTRACTOR shall decontaminate transport vehicles, after discharging their shipments, prior to leaving the authorized TSD facility.

3) Transportation Routes

All transport vehicles shall follow the route presented on Figure 6-2. The T&D CONTRACTOR shall incorporate the transportation route into the Transportation and Disposal Plan and at all times follow such route.

Other parts of the transportation route shall conform to the Transportation and Disposal Plan, and shall account for HAZARDOUS MATERIAL transportation routes which may be designated by state and local police departments or other governmental agencies.

#### 4) Placards

Vehicles shall display placards that conform to U.S. Department of Transportation (DOT) requirements and other APPLICABLE LAW(S).

#### 5) Manifests

In advance of transportation, the T&D CONTRACTOR shall prepare manifests for signature by CLIENT. The CLIENT or CONSULTANT will sign manifests at the appointed time, upon departure of the transport vehicles from the SITE.

#### 6) Other Documentation

The T&D CONTRACTOR shall track transportation closely to ensure no releases of material have occurred in transit and to ensure that all necessary documentation is kept.

In the unlikely event that a release of material occurs in route, the T&D CONTRACTOR shall contain and remediate the affected area(s) as needed. If a material release or accident occurs the following personnel must be contacted immediately:

- THAN Representative
- Elementis Representative
- Louisiana State Police
- USEPA or DOT

The T&D CONTRACTOR shall summarize transportation activities for each day and shall submit completed forms to the CLIENT or the CLIENT'S REPRESENTATIVE by the next working day.

#### 7) Coordination with Disposal Facility (ies)

The T&D CONTRACTOR shall coordinate transportation activities with the disposal facility (ies) (approved by the CLIENT) so that the disposal facility (ies) is afforded adequate notice regarding the timing, type, and quantity of material to expect. The T&D CONTRACTOR shall promptly report any difficulties in the coordination, or any delays in unloading, to the CLIENT or CONSULTANT.

#### 8) Rejected Loads

The CLIENT will have filed Waste Profile Sheets that characterize the HAZARDOUS WASTE to be disposed of. If the disposal facility (ies) should not accept a load of

material, the T&D CONTRACTOR shall immediately contact the CLIENT or CONSULTANT. The CLIENT will then confer with the disposal facility and select a course of action. The T&D CONTRACTOR shall follow the CLIENT'S direction. If standby time becomes excessive or if the CLIENT directs that the load be returned to the SITE, through no fault of the T&D CONTRACTOR, the extra work will form the basis of a CHANGE ORDER.

9) Disposal

The T&D CONTRACTOR shall dispose of NON-HAZARDOUS WASTE and HAZARDOUS WASTE in strict accordance with APPLICABLE LAW(S), including any conditions required by issued permits. The T&D CONTRACTOR shall track the disposal location of HAZARDOUS WASTE, which shall include: identification of the disposal cell, lift or elevation within the cell, and horizontal position within the cell.

## C-11 SITE RESTORATION

### Scope

This section covers requirements for the CONTRACTOR to establish the post remediation condition of the facility required by the RD. Upon completion of excavation activities, the surface will be brought to final grade and properly vegetated in accordance with the intended future use of the site; sidewalks, as shown on Figure 6-5, disturbed during remediation shall also be restored. The Final site Grading Plan will be developed before remedial activities are completed. The work covered in this section includes, but is not necessarily limited to, the following:

- Placement of backfill material and/or removal of in-place soil, if necessary;
- Grading of backfill material;
- Seeding or sodding of the facility;
- Selection and placement of sidewalk; and
- Construction of sidewalks.

### EXECUTION

#### Final Grading

Upon completion of all remediation actions specified in the Remedial Design and removal of the existing un-disturbed asphalt/limestone cover, the following shall be enacted to properly backfill and grade topsoil in a manner that will facilitate drainage. Following completion of the post excavation soil sampling and analyses, excavations will be backfilled and subsequently covered according to Figure 6-5 and the following procedures.

#### Borrow Soil Sampling and Analyses

Concurrent with site preparation activities, several off-site borrow areas will be located. Representative bulk soil samples will be collected from the proposed borrow pits for geotechnical analyses. The borrow soil material may also be chemically analyzed under the same EPA test methods utilized for analyzing the post excavation soil samples. The bulk, borrow soil samples will be subjected to the following geotechnical tests:

- Particle Size Analyses (ASTM D - 422-63);
- Natural Moisture Content (ASTM D - 2216-80);
- Organic Content Percentage (ASTM D - 2974-87); and
- Standard Proctor Compaction Test (ASTM D - 698).

The geotechnical results will be used as a guideline for recompaction of the borrow soil materials during the backfilling activities at the facility.

### Backfill Methods and Testing

The objective of the backfill procedures is to return the facility to a geotechnically sound condition. The backfill will be constructed in accordance with the following specifications:

- Material will be substantially free of organic or other deleterious matter;
- Material will be placed in 12-inch thick loose lifts and properly compacted;
- Material will be sloped to allow for the collection of precipitation in one general area during backfilling;
- Material will be compacted to at least 90 percent of the maximum dry density and at a moisture content that will achieve the desired compaction criteria;
- Field density (ASTM D-2922) and moisture content (ASTM D-3017) tests shall be performed at a minimum frequency of one test per 1000 cubic yards of compacted backfill material. Locations for tests shall be distributed evenly throughout the fill as determined by THAN or the CONSULTANT'S on-site representative.

The CONTRACTOR will backfill the site according to the grade specified in Figure 6-5. If before the final grading is complete surface water pools on-site or uncontaminated stormwater remains in temporary sumps, temporary grading shall be conducted in a manner that permits the surface water to drain off-site, until the final grading has been implemented. If during final grading, or any appropriate phase, off-site discharge water becomes turbid from excavation or backfill material, fabric filters will be used to prevent surface soil erosion.

Quality control procedures will include inspection and testing sufficient to determine that the backfill material meets the aforementioned specifications. The field test procedures will adhere to ASTM standards and will be documented and recorded for final documentation. It will be the responsibility of the CONTRACTOR to survey and document the completed remedial excavation area once final grading is complete.

### Vegetative Cover

Upon completion of the final grading plan, a 6-inch to 1-foot, which is required for seeding or sodding, shall be placed over the backfill material. The CONTRACTOR shall either seed or sod the entire facility in accordance with the NODPW General

Specifications for Street Paving (1999 Edition, Revised 10/1/2001). Requirements for a vegetative cover are as follows: grass seed (March through September) shall be hulled Bermuda Grass with minimum 82% by weight of pure live seed and maximum 1% by weight weed seed. Grass seed (September through March) shall be 50% Turf Type Tall Fescue (variety "Jaguar") and 50% non-hulled Bermuda Seed. Fescue shall have minimum 82% by weight pure live seed and maximum 1% by weight weed seed. If the CONTRACTOR so chooses to sod the facility, sodding must be either field or nursery grown. Field grown grass shall be Bermuda grass, carpet grass or other approved grass native to the sodded area and nursery grown grass shall be centipede, Tiffway Bermuda, Nomow Bermuda, Common Bermuda or St. Augustine grass. Sod shall be free from noxious weeds or other vegetation. The grass shall be fertilized with a complete fertilizer with an analysis of 8-8-8, 13-13-13 or equal approved by the Parkway and Parks Commission.

#### Future On-site Surface Water Drainage System

The future on-site surface water drainage system will be designed based on the future use of the facility and the rainfall associated with a 25 year 24 hour precipitation event. Grading will be such that a large percentage of the drainage is toward the surrounding streets. Required elevations are detailed in Figure 6-5. The system will include the installation of on-site catch basins and or drop inlets, shown in Figure 6-5, which collect the surface water runoff for subsequent discharge to the S&WBNO drainage system via underground drain lines.

#### Sidewalk Placement

The CONTRACTOR shall build sidewalks in accordance with the standards specified by the City of New Orleans Department of Public Works (NODPW). The sidewalks shall be constructed in the locations specified in Figure 6-5. The sidewalks will generally include: a minimum 4-inch thick 304 aggregate sub-base covered with a 4-inch thick class A concrete reinforced with 6 x 6x w2.9 x W2.9 wire mesh sloped at 1/4-inch per 1-foot.

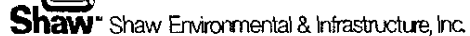
## **APPENDIX D**

### **EXAMPLE FIELD FORMS**



DAILY LOG	DATE			
	NO.			
	SHEET OF			

327C-12-90



## SAMPLE COLLECTION LOG

AMOUNT  
COLLECTED

PREPARED BY: \_\_\_\_\_

COMMENTS: (Continued)	Grid area for comments	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">DATE</td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> <td style="width: 10%;"></td> </tr> <tr> <td>TIME</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>PAGE</td> <td colspan="5">_____ OF _____</td> </tr> <tr> <td>PAGE</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td colspan="6">PROJECT NO.</td> </tr> </table>	DATE						TIME						PAGE	_____ OF _____					PAGE						PROJECT NO.					
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PREPARED BY: \_\_\_\_\_

#### LEGEND

1. A SAMPLE COLLECTION LOG IS TO BE COMPLETED FOR EACH SAMPLE.
2. ALWAYS COMPLETE BOTH SIDES. IF SECOND SIDE IS NOT USED, DRAW A LINE THROUGH IT AND MARK N/A. FILL IN CONTROL BLOCK AND PREPARED BY.
3. ALL ENTRIES ON LOG ARE TO BE COMPLETED, IF NOT APPLICABLE MARK N/A.
4. DATE: USE MONTH/DAY/YEAR; I.E., 10/30/85
5. TIME: USE 24-HOUR CLOCK; I.E. 1835 FOR 6:35 P.M.
6. PAGE : EACH SAMPLE TEAM SHOULD NUMBER PAGE \_\_\_\_\_ OF \_\_\_\_\_ FOR THE DAY'S ACTIVITIES FOR ALL SHEETS PREPARED ON A SINGLE DAY, I.E., IF THERE ARE A TOTAL OF 24 PAGES (INCLUDING FRONT AND BACK) NUMBER 1 OF 24, 2 OF 24, ETC.
7. SAMPLE LOCATION: USE BORING OR MONITORING WELL NUMBER, GRID LOCATION (TRANSECT), SAMPLING STATION I.D., OR COORDINATE TO PHYSICAL FEATURES WITH DISTANCES, INCLUDE SKETCH IN COMMENT SECTION IF NECESSARY.
8. SAMPLE TYPE: USE THE FOLLOWING - SOIL; WATER (SURFACE OR GROUND); AIR (FILTERS, TUBES, AMBIENT, PERSONNEL); SLUDGE; DRUM CONTENTS; OIL; VEGETATION; WIPE; SEDIMENT.
9. COMPOSITE TYPE: I.E., 24-HOUR, LIST SAMPLE NUMBERS IN COMPOSITE, SPATIAL COMPOSITE.
10. DEPTH OF SAMPLE: GIVE UNITS, WRITE OUT UNITS SUCH AS INCHES, FEET, DON'T USE "OR".
11. WEATHER: APPROXIMATE TEMPERATURE, SUN AND MOISTURE CONDITIONS.
12. CONTAINERS USED: LIST EACH CONTAINER TYPE AS NUMBER, VOLUME, MATERIAL (E.G., 2 - 1L GLASS; 4 - 40 ML GLASS VIAL; 1 - 400 ML PLASTIC; 1 - 3 INCH STEEL TUBE; 1 - 8 OZ GLASS JAR)
13. AMOUNT COLLECTED: VOLUME IN CONTAINERS (E.G. 1/2 FULL).

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD\*

Reference Document No. 010  
Page 1 of 1

White: To accompany Samples

Yellow: Field Copy

\* See back of form for special instructions.

Project Name/No.                       
 Sample Team Members                       
 Profit Center No.                       
 Project Manager                       
 Purchase Order No.                       
 Required Report Date                     

Samples Shipment Date                       
 Lab Destination                       
 Lab Contact                       
 Project Contact /Phone                       
 Carrier / Waybill No.                     

Bill To:                       
                      
                      
 Report To:                       
                      
                    

## ONE CONTAINER PER LINE

Sample Number	Sample Description / Type	Date / Time Collected	Container Type	Sample Volume	Pre-Servative	Requested Testing Program	Condition on Receipt	Disposal Record No.
							FOR LAB	
							USE ONLY	
							FOR LAB	
							USE ONLY	
							FOR LAB	
							USE ONLY	

### Special Instructions:

Possible Hazard Identification:                       
 No-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐

Sample Disposal:                       
 Return to Client ☐ Disposal by Lab ☐ Archive                      (mos.)

Turnaround Time Required:                       
 Normal ☐ Rush ☐

QC Level:                       
 I. ☐ II. ☐ III. ☐

Project Specific (Specify):                     

1. Relinquished by                      Date:                       
 (Signature/Affiliation) Time:                     

2. Relinquished by                      Date:                       
 (Signature/Affiliation) Time:                     

3. Relinquished by                      Date:                       
 (Signature/Affiliation) Time:                     

Comments:

[illegible]





## VARIANCE LOG

PROJECT NUMBER \_\_\_\_\_ PAGE \_\_\_\_\_ OF \_\_\_\_\_

PROJECT NAME \_\_\_\_\_

[illegible]



Shaw Environmental & Infrastructure, Inc.

## RECORD OF

☐ TELECON

☐ MEETING

Project Name

Number

Phase

task

Subtask

Date:

Time:

CALL FROM ☐ NAME:

CALL TO ☐

Other Participants - Name/Location/representing:

CALL FROM ☐ NAME:

CALL TO ☐

Telephone Number:

Company Name:

Address:

Topic:

City:

State:

Zip Code:

Summary (Decision & Specific Actions Required by Named Persons):

Required Action:

Prepared by (Signature):

Distribution:  
Original to Project File  
Copy to Project Manager  
Copy to Preparer

☐ Other Distribution (By Preparer):

PAGE \_\_\_\_\_ OF \_\_\_\_\_



# SAFETY INSPECTION REPORT

SHAW E&amp;I DIVISION \_\_\_\_\_ DATE: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_ TIME FROM: \_\_\_\_\_ TO: \_\_\_\_\_

**JOB LOCATION:** \_\_\_\_\_

SUPERVISOR: \_\_\_\_\_ FOREMAN: \_\_\_\_\_

GENERAL JOB DESCRIPTION: \_\_\_\_\_

**EMPLOYEES:** \_\_\_\_\_

**SAFETY CONDITIONS:** \_\_\_\_\_

**SIGNATURE:** \_\_\_\_\_  
(Job Supervisor/Foreman)

SIGNATURE: \_\_\_\_\_  
(Health & Safety)



Shaw Environmental & Infrastructure, Inc.

# TAILGATE SAFETY MEETING

Division / Subsidiary Shaw E&I, Inc. - BR Division / Subsidiary CCEG

Date \_\_\_\_\_ Time \_\_\_\_\_ Job Number \_\_\_\_\_

Customer \_\_\_\_\_ Address: \_\_\_\_\_

Specific Location \_\_\_\_\_

Type of Work \_\_\_\_\_

Chemicals Used \_\_\_\_\_

## SAFETY TOPICS PRESENTED

Protective Clothing/Equipment \_\_\_\_\_

Chemical Hazards \_\_\_\_\_

Physical hazards \_\_\_\_\_

Emergency Procedures \_\_\_\_\_

Hospital / Clinic \_\_\_\_\_ Phone \_\_\_\_\_ Paramedic Phone \_\_\_\_\_

Hospital Address \_\_\_\_\_

Special Equipment \_\_\_\_\_

Other \_\_\_\_\_

## ATTENDEES

NAME PRINTED

SIGNATURE

_____
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_____

Meeting conducted by:

NAME PRINTED

SIGNATURE

Supervisor \_\_\_\_\_

Manager \_\_\_\_\_



Date: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Location of Work: \_\_\_\_\_  
Issued By: \_\_\_\_\_

## JOB SAFETY ANALYSIS (JSA)

Supervision/Foreman \_\_\_\_\_

Consider the following and check the items which apply to the job, then review the hazards with the work crew.

### Permits

\_\_\_\_ Required  
\_\_\_\_ Cold Work  
\_\_\_\_ Hot Work  
\_\_\_\_ Entry Permit  
\_\_\_\_ All conditions Met  
\_\_\_\_ Signed off when complete  
\_\_\_\_ Other: \_\_\_\_\_

### Personal Protective Equipment

\_\_\_\_ Hard Hat  
\_\_\_\_ Ear Protection  
\_\_\_\_ Safety Harness  
\_\_\_\_ Type of Glove  
\_\_\_\_ Composition of Gloves  
\_\_\_\_ Special Purpose Gloves  
\_\_\_\_ Tyvek Suit  
\_\_\_\_ Acid Suit/Slicker Suit  
\_\_\_\_ Rubber Boots  
\_\_\_\_ Mono Goggles  
\_\_\_\_ Burning/Welding Face Protection  
\_\_\_\_ Face Shield  
\_\_\_\_ Respirator  
\_\_\_\_ Fresh Air  
\_\_\_\_ Other: \_\_\_\_\_

### Tools

\_\_\_\_ Current Inspection  
\_\_\_\_ Proper tools  
\_\_\_\_ Good tool condition  
\_\_\_\_ Qualifications  
\_\_\_\_ Other: \_\_\_\_\_

### Emergency Equipment

\_\_\_\_ Fire Extinguishers  
\_\_\_\_ Safety Shower  
\_\_\_\_ Evacuation Route/Map  
\_\_\_\_ Other: \_\_\_\_\_

### Access

\_\_\_\_ Scaffold (properly inspected)  
\_\_\_\_ Ladder (tied off/secured)  
\_\_\_\_ Manlift  
\_\_\_\_ Personnel Basket (approved/inspected)  
\_\_\_\_ Operator Training  
\_\_\_\_ Other: \_\_\_\_\_

### Welding

\_\_\_\_ Flashburns  
\_\_\_\_ Combustibles  
\_\_\_\_ Spark containment  
\_\_\_\_ Shields  
\_\_\_\_ Grounding  
\_\_\_\_ Water Hose  
\_\_\_\_ Fire Extinguisher  
\_\_\_\_ Fire Blanket  
\_\_\_\_ Fire Watch  
\_\_\_\_ Sewer Covers  
\_\_\_\_ Other: \_\_\_\_\_

### Overhead Work

\_\_\_\_ Barricades  
\_\_\_\_ Signs  
\_\_\_\_ Hole Cover  
\_\_\_\_ Handrails  
\_\_\_\_ Other: \_\_\_\_\_

### Electrical

\_\_\_\_ Locked & Tagged Out  
\_\_\_\_ Try Start/Stop Switch  
\_\_\_\_ GFCI Test  
\_\_\_\_ Assured Grounding  
\_\_\_\_ Extension Cord Inspection  
\_\_\_\_ Other: \_\_\_\_\_

### Lifting

\_\_\_\_ Forklift  
\_\_\_\_ Cherry Picker  
\_\_\_\_ Load Chart  
\_\_\_\_ Angle  
\_\_\_\_ Crane  
\_\_\_\_ Chainfall  
\_\_\_\_ Proper Rigging Practices  
\_\_\_\_ Manual Lifting  
\_\_\_\_ Condition of Equipment  
\_\_\_\_ Operator Certified  
\_\_\_\_ Other: \_\_\_\_\_

### Hazards (Environmental)

\_\_\_\_ Electrical Shock  
\_\_\_\_ Heat Stress  
\_\_\_\_ Heavy Objects  
\_\_\_\_ Hot/Cold Surface or Material  
\_\_\_\_ Inadequate Lighting  
\_\_\_\_ Line Breaking  
\_\_\_\_ Noise  
\_\_\_\_ Poor Access/Egress  
\_\_\_\_ Sharp Objects  
\_\_\_\_ Other: \_\_\_\_\_

### Chemical Hazards

\_\_\_\_ Chemical Burn Skin/Eyes  
\_\_\_\_ Flammable  
\_\_\_\_ Ingestion  
\_\_\_\_ Inhalation  
\_\_\_\_ Skin Contamination  
\_\_\_\_ Other: \_\_\_\_\_

### Body Hazards

\_\_\_\_ Fall Potential  
\_\_\_\_ Pinch Points  
\_\_\_\_ Slip/Trip Potential  
\_\_\_\_ Other: \_\_\_\_\_

### Other Work in Area

\_\_\_\_ Others working overhead  
\_\_\_\_ Type of work others performing  
\_\_\_\_ PPE Due to Other Work  
\_\_\_\_ Other: \_\_\_\_\_

### Confined Space

Know the following:

Possible hazards within space  
First signs of exposure  
How to summons help  
How to track personnel  
Entering and exiting the confined space  
Maintain contact with all entrants by  
by visual or voice contact at all times  
Do not attempt to rescue unless you are  
Remain at entry point and assume no  
no duties that will take you from there



Date: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Location of Work: \_\_\_\_\_  
Issued By: \_\_\_\_\_

## JOB SAFETY ANALYSIS (JSA)

<b>List Required PPE:</b>	<b>Safety Access / Location</b>	<b>Supervisor:</b>
	Protected or Safe Building/Area:	<b>JSA Prepared by:</b>
	Wind Direction:	
<b>Pre-Job Preparation:</b>	Evacuation Route:	<b>Are others in work area?</b>
1. Filled out JSA? <input type="checkbox"/>	Assembly Point:	<b>New JSA?</b> <input type="checkbox"/>
2. Reviewed JSA with entire crew? <input type="checkbox"/>		<b>or</b>
3. Everyone has signed JSA? <input type="checkbox"/>		<b>Revised JSA?</b> <input type="checkbox"/>
<b>Job Tasks</b> What does the work at this job/location consist of?		<b>Review of the Job (Safety Only)</b>
		<b>Time of Review:</b>
		<b>Safety Representative:</b>
		<b>Comments:</b>
<b>List the Potential Hazards of this job/work</b>		<b>Supervisor's Comments:</b>
<b>Recommended Actions or Procedures</b>		<b>Supervisor's Initials:</b>
<b>Signatures:</b>		

PROBES: \_\_\_\_\_

[illegible]

**APPENDIX E**

**AIR MONITORING PLAN**

# ***AIR MONITORING PLAN***

***7700 Earhart Boulevard Facility  
New Orleans, Louisiana***

***Project Number 118267  
March 2, 2006***

**Prepared By:**

**Shaw Environmental, Inc.**

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## ***Abbreviations and Acronyms***

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Adventus	Adventus Bioremediation Technologies, Inc.
Agreement	Cooperative Agreement
ASTM	American Society for Testing and Materials
bgs	below ground surface
COPCs	Constituent of Potential Concern
CPT	Cone Penetrometer Testing
DAF	Dilution Attenuation Factor
DOT	Department of Transportation
Elementis	Elementis Chemicals, Inc.
EPA	Environmental Protection Agency Region VI
ESA	Environmental Site Assessment
Facility or site	7700 Earhart Boulevard Facility
FS	Feasibility Study
GQA	Groundwater Quality Assessment
LDAF	Louisiana Department of Agriculture and Forestry
LDR	Land Disposal Restriction
LDEQ	Louisiana Department of Environmental Quality
LDOTD	Louisiana Department of Transportation and Development
MQL	Minimum Quantification Levels
NAPL	Non-aqueous phase liquid
NIOSH	National Institute for Occupational Safety and Health
OCL	Organochlorine
OSHA	Occupational Safety and Health Administration
PCO	Pest Control Operation
PID	Photoionization Detector
ppm	part per million
RA	Risk Assessment
RD	Remedial Design
RAL	Remedial Action Levels
RAP	Remedial Action Plan
RAOs	Remedial Action Objectives
RCRA	Resource Conservation and Recovery Act
RECAP	Risk Evaluation Corrective Action Program
Shaw	Shaw Environmental & Infrastructure, Inc.
S&WBNO	Sewerage and Water Board of New Orleans

## ***Abbreviations and Acronyms (continued)***

---

TCDD	Tetrachlorodibenzo-p-dioxin
THAN	T H Agriculture & Nutrition, L.L.C.
THCC	Thompson-Hayward Chemical Company
TS	Treatability Study
UFS	Underground Facility Structures
UHCs	Underlying Hazardous Constituents
UTS	Universal Treatment Standards
VOC	Volatiles Organic Compounds

## 1.0 Introduction

---

This Air Monitoring Plan is prepared for the 7700 Earhart Boulevard Site (Site) on behalf of T H Agriculture & Nutrition, L.L.C. (THAN) and Elementis Chemicals, Inc (Elementis) (formerly known as Harcros Chemicals, Inc.) in accordance with the Section VI.D of the Cooperative Agreement (Agreement) between THAN, Harcros Chemicals, Inc., and the Inactive and Abandoned Sites Division of LDEQ and the Louisiana Department of Agriculture and Forestry (LDAF). The objective of this plan is to protect workers and the surrounding community from release of site related constituents during remediation activities.

As part of the remedial approach, the contaminated soil will be excavated within an enclosure. The enclosure will be equipped with exhaust ventilation and wide enough and tall enough to allow for the operation of heavy machinery. This enclosure, therefore, will be protective of the community since no off-site migration of site related compounds are expected. This air monitoring program, therefore, is designed to protect the employees working within the enclosure and to verify that there is no off-site migration of compounds or leakage from the enclosure. In addition to conducting remedial activities within the enclosure, other engineering controls may be implemented to further control any possible emissions. These controls include but are not limited to the application of vapor suppressant foams and placing a plastic sheeting barrier immediately upon the surface of excavated soils within the roll-offs, etc.

This plan will be implemented by qualified personnel who will be trained on the procedures herein. The Project Certified Industrial Hygienists (CIH) shall oversee the program and be consulted with in the event of questions, concerns, or problems in implementing the program on-site.

## **2.0 Background**

---

The Earhart Boulevard Site (Site) is situated on an approximately 2.7 acre tract of land located in New Orleans, Louisiana, as shown on Figure 2-1. The facility lies within a residential and light industrial district in the city and is bounded by Earhart Boulevard, Burdette, Pine, and Colapissa Streets. A 40,000 square foot cinder block warehouse building is located on square 461. A temporary asphalt cover is located over the remainder of the property. A layout of the facility is presented on Figure 2-2 of the Remedial Design Plan.

Air monitoring protocols and airborne action levels established in this plan are based on review and evaluation of the chemical constituents of potential concern (COPC) and the COPC concentrations, with respect to published occupational exposure limits, site conditions, and work scope. For more information, see the Site Specific Health and Safety Plan.

## **3.0 Air Monitoring Procedures**

---

### **3.1 Monitoring Activities**

Real time work zone and perimeter volatile organic compounds (VOC) air monitoring activities will be undertaken during all site excavation and other soil disturbance activities in contaminated or suspected contaminated areas.

These contaminated areas will be enclosed with a sprung-like tent structure designed to encompass the entire area where excavation of material will take place. For discussion purposes, the structure is designated as an enclosed remedial activities building (ERAB). The purpose of this is to capture site compounds within the work zone using exhaust ventilation techniques along with a HEPA filtering apparatus followed by an air treatment method such as an activated carbon filtration unit or thermal oxidizer. In this way, site related chemical compounds are designed to not escape from the ERAB to the open atmosphere. The perimeter of the ERAB or containment will be monitored to verify that leakage of air from the ERAB has been minimized, except through the approved air filtration system. This air handling system will provide a negative pressure on the ERAB further reducing the potential for air leakage to the outside atmosphere.

The following procedures address the perimeter monitoring requirements and the work zone monitoring requirements.

#### **3.1.1 Real Time Outside Containment Perimeter Monitoring**

Real time air monitoring will be performed around the perimeter of the work zone enclosure to verify that volatile organic compounds are not escaping or that the engineering controls used within the containment are adequate in maintaining airborne concentrations below occupational target thresholds (negative air filtration system). This will entail circling the enclosure every 15 to 30 minutes, beginning with upwind (background) readings and covering at least 8 locations around the containment, during the first week of activities. These locations will include entrance ways and the ventilation exhaust stack, as they are potential release areas. After the first week of activities, the project Health and Safety Manager will review the air monitoring data to determine if air monitoring plan modifications are necessary (i.e., increase or decrease in frequency and/or locations of monitoring). Background readings will be taken at the start of each workday and periodically throughout the day (4 times a day minimum), unless otherwise

specified herein. Background readings will be recorded as a range of concentrations that are detected upwind during background checks.

### **3.1.2 Threshold Level Response Action**

The threshold level around the outside perimeter of the ERAB will be 5 parts per million (ppm). This conservative threshold value has been established to ensure early detection of leakage so on-site engineering personnel can correct for any deficiencies in maintaining negative air pressure within the enclosure and protect against fugitive air emissions. If 5 ppm above the background level is detected at any of the locations around the perimeter of the containment area, the monitoring technician shall do the following:

- Go upwind and re-check background concentrations
- Compare the results to the new background concentrations and subtract out background concentrations
- If VOC concentrations at the particular location persists above the target threshold, the On-site Supervisor and Health and Safety Manager will be informed. The source of leak will be determined and verified and immediate corrective actions to stop the leak will be conducted. Monitoring activities may include additional air (grab) screening using colorimetric detector tubes. The Health and Safety Manager will assist in this effort, when necessary (See HASP). If colorimetric tubes confirm the presence of a particular VOC, then the threshold level response action may be adjusted to reflect the collected information.

When a leak is found and then corrected, the area must be surveyed again using real time air monitoring, and if necessary, use of colorimetric detector tubes for screening purposes (See HASP).

If an identified leak cannot be isolated or corrected immediately, the nearest downwind site perimeter location will be surveyed using real-time monitoring equipment. If real time monitoring readings do not exceed more than 5 ppm above the relative background range (upwind), then the site will continue normal activities. Otherwise, the air handling system should be examined to confirm proper operation and engineering controls such as foam should be considered

If it is determined that VOC concentrations are not being generated from the containment activities, then the site may proceed with normal operations. The project site safety technician shall record this as an off-site interference.

Monitoring equipment will consist of a Photoionization Detector (PID) or Flame Ionization Detector (FID) capable of detecting VOCs. The monitoring equipment shall be calibrated on a daily basis and documented in a dedicated field log book.

### **3.1.3 Work Zone Monitoring**

Real time VOC air monitoring will be performed during invasive activities within the ERAB for the protection of site personnel. Site personnel who will be working within the enclosure will, at a minimum, be equipped with Level B (Supplied Air) protection. Air monitoring, initially (first week), will be conducted hourly within the worker's breathing zone and source readings will be obtained. Monitoring equipment will consist of a Photoionization Detector (PID) or Flame Ionization Detector (FID) capable of detecting the site contaminants. The monitoring equipment shall be calibrated on a daily basis and documented in a dedicated field log book.

In addition, one (1) air sample will be collected at each excavation location near the workers to determine the presence or absence of site contaminants and their respective concentrations. These air samples will be collected using SUMMA canisters and analyzed for total semi-volatile and volatile compounds (TO-15 and TO-14 analysis, respectively). Based on the evaluation of the results, the Health and Safety Manager may make modifications to this plan, such as changes in sampling frequency and/or sampling locations, changes in personal protective equipment, and/or changes in work practices. All testing will be done on an expedited turn around basis. All of the sample data must be reported to the Shaw E&I Project Manager.

The action level for worker protection within the enclosure is based on the lowest Immediately Dangerous to Life and Health (IDLH) volatile organic constituent, with respect to the concentration and potential for accumulation within the enclosure. This compound is Tetrachloroethylene, with the current National Institute for Safety and Health (NIOSH) IDLH exposure limit of 150 ppm. As a precaution, the action level will be set at half of the IDLH, or 75 ppm. If this action level is exceeded in the breathing zone of the workers, the job must be

stopped and the current situation evaluated for possible engineering control problems (lack of ventilation) or breaches in the enclosure.

### **3.2 Air Monitoring Recordkeeping And Observations**

The on-site qualified safety officer or technician will ensure that all air-monitoring data is logged in a dedicated log book. Documentation shall be made clear, concise, and provide the data, time of entry, location, personnel, weather conditions, and background concentrations for each area, and include all observational data that has potential for impacting results, such as potential off-site interferences, on-site public interferences, damage to instruments, site equipment problems, or weather related interferences.

All pages must be numbered; no lines shall be left blank (or put a line through it), and must be initialed on each page. The last entry page for the shift or day that has blank space left at the bottom shall have a line drawn diagonally across it and signed at the bottom of the page. All corrections must be made with a single line and initialed. Air monitoring results and records must be made available to the Shaw E&I Project Manager.

### **3.3 Equipment Operational Requirements**

The air monitoring equipment must be operated by trained and qualified personnel. Personnel who perform air-monitoring functions described in this section shall be experienced in the use of field air monitoring equipment, as well as the air monitoring procedures described above. There must also be appropriate staff (chemist, industrial hygienist or environmental scientist) that can be capable of assessing the results of the air monitoring activities and advising field personnel and the Construction Manager of air quality considerations.

All monitoring equipment must be calibrated on a daily basis in accordance with the manufacturer's operating instructions. A dedicated log book for each unit will be kept detailing date, time, calibration gas, or other standard, and name of person performing the calibration.

### **3.4 VOC Engineering Controls**

The information and procedures presented in this section shall be used for VOC control activities during excavation and other soil disturbance activities within the enclosure. The Construction

Manager for the project will be responsible for implementing these controls and verifying that air monitoring results are below the action level inside and outside of the enclosure.

The primary control of VOCs during excavation work or other soil disturbance activities will consist of a prefabricated mobile containment system or structure, which will be placed over soil areas to be remediated. This system will be equipped with an air ventilation exhaust system designed to draw contaminants away from the work zone and filtered through a HEPA system and treatment unit such as an activated carbon filtration unit or thermal oxidizer. In the event the primary system fails, the construction manager will implement the following methods or measures in order to prevent leakage from the enclosure or accumulation of contaminants within the enclosure.

- Covering soil areas with tarps;
- Wetting excavation material;
- Backfilling the excavation;
- Vapor suppression, such as foaming agents.

### **3.5 Weather Monitoring**

Weather instrumentation shall be used at the site to determine the wind speed, wind direction, barometric pressure, and relative humidity. This data shall be obtained while work is progressing and documented in a dedicated field log book or in an associated software program that logs these readings. In addition, general weather conditions shall be monitored on a daily basis from the closest National Weather Service (NWS) Station and documented in the dedicated field log book.

## **APPENDIX F**

### **SAMPLING AND ANALYSIS AND QUALITY ASSURANCE/QUALITY CONTROL PLAN**

**SAMPLE AND ANALYSIS AND  
QUALITY CONTROL QUALITY ASSURANCE PLAN**

***7700 Earhart Boulevard Facility  
New Orleans, Louisiana***

***Agency Interest No.:1275***

***Project No. 118267  
March 2, 2006***

Prepared for:

TH Agriculture and Nutrition LLC  
and  
Elementis Chemicals, Inc.

Prepared by:

Shaw Environmental and Infrastructure, Inc.  
4171 Essen Lane  
Baton Rouge, LA 70809

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## ***List of Attachments***

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## 1.0 Introduction

---

The Facility is situated on an approximately 2.7-acre tract of land located in New Orleans, Louisiana. The facility lies within a residential and light industrial district in the city and is bounded by Earhart Boulevard, Burdette, Pine, and Colapissa Streets (Figure C-1). The Facility coordinates are approximately 29° 57' 32" north latitude and 90° 06' 42" west longitude. The facility is currently vacant and is situated on land squares 461 and 462. An appropriate 40,000 square foot cinder block warehouse building is located on square 461. A temporary asphalt cover is located over the remainder of the property.

Four distinct areas (Areas 1 through 4) have been identified which require remedial action. Area 1 consists of three separate areas of excavation (1-A, 1-B, and 1-C). Area 1 is located southwest of the warehouse and is largest of the excavations. Area 2 is located near the property boundary adjacent to Pine Street. Area 3 is located adjacent to the southernmost side of the warehouse. Area 4 is located near the property boundary adjacent to Burdette Street. The proposed excavation work areas are shown on Figure C-2. Based on the results of the Risk Assessment (RA) (IT Corporation, October 2001), Addendum to RA (IT Corporation, April 2002), Feasibility Study (FS) (Shaw, January 2003), and FS Addendum No. 2 (Shaw, December 2004) the media requiring remedial action includes the following:

- Debris;
- Liquids;
- Storm drain sediments; and
- On-site surface and subsurface soil.

On-site surface soil is defined as the soil located on the property (e.g., street curb to street curb) with a depth range from just below the original concrete cover to an approximate depth of 4.5 feet below ground surface (ft-bgs), which coincides with the approximate elevation of the top of the first encountered groundwater. On-site subsurface soil includes soil to an approximated depth of 10 ft-bgs.

This Sampling and Analysis Plan (SAP) describes the sampling and analysis activities that will be conducted in support of the remedial activities at the site and to demonstrate that the remedial action goals were achieved.

## **2.0 Field Sampling Program**

---

### **2.1 Sampling Rational**

Confirmation samples will be collected from each area once the excavation has been completed to a suitable depth to demonstrate that remedial goals have been achieved. Remedial goals will be achieved once concentrations of chemicals of concern (COCs) are reported below their respective Remedial Action Level (RAL). Bottom and sidewall samples will be collected from each excavation within an established grid system for each area. The sampled excavation area will remain open until analytical results verify that the remedial goals have been achieved. If further excavation is warranted, additional grid systems will be established and further samples obtained for verification.

### **2.2 Sample Locations**

#### **2.2.1 Confirmatory Sample Locations**

Post-excavation confirmatory soil samples will include samples from the bottom and sides of each excavation (as required based on the amount of groundwater encountered), and the appropriate quality assurance/quality control (QA/QC) samples. A grid system of no more than 20 feet x 20 feet will be measured at the base of each excavated area. One discrete bottom sample will be obtained from each grid square. Discrete sidewall sample(s) as appropriate will also be obtained within the grid system.

### **2.3 Field Sampling Procedures**

#### **2.3.1 Sample Collection**

Soil samples will be obtained using the hand auger, shovel, or excavation equipment bucket. All soil sampling equipment that may come in contact with the soil will be decontaminated prior to sampling following the procedures presented in Section 2.2.3. If samples are obtained using the equipment bucket, enough soil will be removed along with the sample (no less than half full) to insure that the current sample does not come in contact with soil from previous sampling locations. Samples will only be obtained with the equipment bucket if access to the excavation becomes limited or presents a safety hazard.

In addition, the following sampling procedures will be followed by field personnel during the sampling activities:

- Field personnel will wear disposable nitrile gloves during the handling of all sampling equipment and during sampling.

- Sampling equipment will not be placed directly on the ground or other potentially contaminated surfaces prior to sampling activities.

Soil samples collected for Volatile Organic Compound (VOC) analysis will be collected in accordance with U.S. Environmental Protection Agency (EPA) Method 5035. The collected soil samples will be preserved with methanol by the analytical laboratory. The EnCore® sampling device has been selected for collection of soil and sediment samples relinquished to the laboratory for VOC analysis. The EnCore® sampler is a hand held coring unit designed to extract a 5 or 25 gram soil sample in the form of a plug that is self-contained in a one-use sampler/container. The EnCore® sampler is designed to minimize the loss of volatile constituents. The container becomes the shipping unit once the sample is collected. No decontamination is required since a new sampling container is used for each sample.

The following Standard Operating Procedures (SOPs) will be used for EnCore® sampling of soil and sediments.

- 1) EnCore® sampler and cap will be removed from the pack and the T-handle will be attached to the sampler body.
- 2) The EnCore® sampler will be quickly pushed into the freshly exposed soil until the EnCore® sampler is full.
- 3) The exterior of the sampler will be quickly wiped with a clean paper towel so the cap can be tightly attached.
- 4) The cap will be pushed with a twisting motion to attach.
- 5) A label will be filled out and attached to the sampler.
- 6) The samples will be stored on ice & shipped to the laboratory within 48 hours of collection.

Once VOC sampling has been conducted, the remainder of the soil obtained from the sampling device will be thoroughly mixed in a clean stainless steel bowl to insure homogeneous samples and subsequently placed in laboratory supplied containers. The appropriate sample bottle requirements and preservative are show in Table 2-2. All samples collected will be shipped daily via overnight courier.

### **2.3.2 Sample Equipment Decontamination**

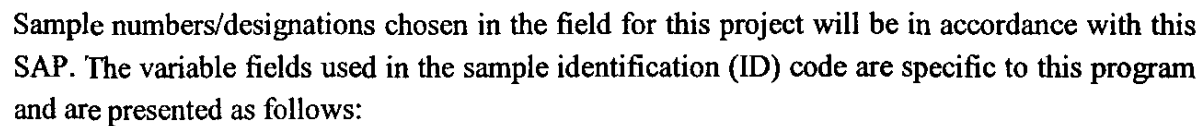
All non-disposable sampling and other field equipment will be decontaminated prior to being used. Decontamination of field equipment will proceed under the following decontamination steps:

- Rinse with De-Ionized (DI) water,
- Scrubbed with a biodegradable solution (e.g.alconox or liquinox and water),
- Re-rinsed with DI water, and

- 



●



Grid Number	Sample Location	Sample Interval	Sample Matrix	Sample Type
GB = grid bottom	Area 1 (A,B,&C)	x.x - x.x = depth interval	SO = soil	CS = confirmatory sample
GS = grid sidewall	Area 2		SD = sediment	RS = routine sample
Sequential numbering	Area 3			GT = geotechnical sample
	Area 4			TB = trip blank
	Area 5			RB = rinsate blank
				FB = field blank
				FD = field duplicate
				MS = matrix spike
				MSD = matrix spike duplicate

●

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completely documented. Information will be recorded on standardized form in indelible ink. Documentation will include a daily log of field activities and chain-of-custody forms.

Field Supervisors of the Shaw staff will each keep a Field Activity Daily Log (FADL) of their activities. Each page of the logs will be signed and dated by the person preparing the record. Items to be included, as appropriate, will be:

- Date of activities
- Field activity subject,
- General work activity,
- Unusual events,
- Changes to plans and specifications,
- Visitors,
- Communication with THAN, LDEQ, EPA, or others,
- Weather conditions, and
- Personnel on site.

Field records will be collected and maintained by the Field Supervisor until completion of the field phase, or until they are submitted to the project central file. An example FADL is provided in Attachment A.

### **2.3.5 Sample Containers and Holding Time Requirements**

Clean sample containers will be provided by the contract laboratory prior to the sampling activities. Proper packaging of sample containers before laboratory submittal will include consideration of:

- Type and composition of inner packing (plastic bags, absorbent packing material, and ice preservation, etc.),
- Type and composition of overpacks (metal or plastic cooler),
- Method of overpack sealing (custody seal), and
- Marking and labeling of overpacks (mailing address).

Samples will be kept on ice until the samples are in the possession of the laboratory. As previously stated in Section 2.3.1, samples will be shipped daily via overnight courier. Container requirements and laboratory holding times are as follows:

Table 2-2

Analysis	Method	Container	Hold time
Organochlorine Pesticides	8081A	4 oz. glass (unpres.)	14 day
Chlorinated Herbicides	8151A	4 oz. glass (unpres.)	14 day
Metals (arsenic, beryllium, chromium)	6010B	4 oz. glass (unpres.)	30 day
VOC	8260B	EnCore®	48 hours
Semi-Volatile Organic Compounds (SVOC)	8270C	4 oz. glass (unpres.)	14 day

### 2.3.6 Chain-of-Custody Procedures

An overriding consideration for data resulting from laboratory analyses is the ability to demonstrate that the samples were obtained from the locations stated and that they reached the laboratory without alteration. Evidence of collection, shipment, laboratory receipt, and laboratory custody until disposal must be documented. Custody seals will be affixed to every sample shuttle and shall not be broken until received by the laboratory. Documentation will be accomplished through an Analysis Request/Chain-of-Custody (AR/COC) form that lists each sample, the individuals performing the sample collection, analysis requested, shipment method, and a receipt. A sample is considered in custody if one of the following conditions is met:

- In a person's actual possession;
- In view, after being in physical possession;
- Locked so that no one can tamper with the sample, after having been in physical possession; or
- In a secured area, restricted to authorized personnel.

The laboratory must not accept samples for analysis without a correctly prepared AR/COC record. The AR/COC will be signed by each individual who has the sample(s) in their possession. The AR/COC field copy will be retained on-site, and later transferred to the project central file. An example AR/COC is included in Attachment A.

## **2.4 Laboratory Analysis**

Laboratory analysis will be performed on soil samples in accordance with the methodologies specified in EPA SW-846. Analyses to be performed on each sample includes on the COCs for the associated media. The COCs for subsurface soil include:

- Organochlorine Pesticides (Method 8081A);
- Chlorinated Herbicides (Method 8151A);
- Metals – arsenic, beryllium, and chromium (Method 6010B);
- Volatile Organic Compounds (Method 8260B); and
- Semivolatile Organic Compounds (SVOC) by EPA Method 8270C).

Laboratory analysis will be performed in accordance with documented and approved work instructions by trained personnel using calibrated equipment. The quality, accuracy, and precision of laboratory analytical results and reports will be performed in accordance with the procedure established by the respective method.

### 3.0 Quality Assurance/Quality Control Plan

A QA/QC sampling program will be implemented as a systematic process that controls the validity of the analytical results by measuring the accuracy and precision of the analytical method and sample matrix. The QA/QC program also develops expected control limits and uses these limits to detect anomalous events. Subsequently, corrective action techniques are implemented to prevent or minimize the recurrence of the events. The accuracy and precision of sample analyses are assessed by the analysis of both field and laboratory samples. Laboratory samples are those associated with sample preparation and analysis and generally include method blanks, laboratory control samples (blank spike), matrix spike/matrix spike duplicates (MS/MSD), and surrogate spikes. Field QA/QC samples are collected in the field to assess sample collection and shipment procedures, and include equipment rinsates, field blanks, field duplicates, and trip blanks.

#### 3.1 Sample Delivery Groups and Sample Frequency

A sample delivery group (SDG) is defined as a group of samples that are batched together to streamline analyzing, validating, and reporting. A sample delivery group will consist of no more than 20 samples per batch that are to be analyzed using the same EPA SW-846 method. When possible, the SDGs will be batched in the field by the Shaw Sample Coordinator. If entire SDGs are not delivered to the laboratory, by the field sampling team, the laboratory may temporarily store the samples and the SDG will be batched at the laboratory. If a group of 20 samples cannot be batched within holding times, the laboratory will analyze the samples in a batch of less than 20.

QA/QC samples will be collected at the following frequency:

Table 3-1

QA/QC Sample	Analysis	Frequency
Rinsate	VOC, SVOC, Pests/Herbs, Metals	one per 20 field samples
Field	VOC	one per day
Trip	VOC	one per cooler containing volatiles
Duplicate	VOC, SVOC, Pests/Herbs, Metals	one per 20 field samples
MS/MSD	VOC, SVOC, Pests/Herbs, Metals	one per 20 field samples

#### 3.2 Field Quality Control Samples

Field QA/QC samples will be collected by the field sampling team during the performance of the sampling activities to insure QA/QC standards are attained. The field QA/QC samples are not included as part of the laboratory's internal QA/QC program and will be handled by the

laboratory as a routine environmental sample. The field team will, to the extent practical, schedule sample collection and shipment of SDGs to minimize the number of QA/QC samples requiring analysis.

### **3.3 *Field Duplicate Samples***

Each duplicate is defined as a second sample taken in the field at a given location. A duplicate soil sample will be collected from the same aliquot of soil used to collect the associated routine sample. The field duplicate will not be identified as a duplicate to the laboratory. Field duplicate samples will be analyzed using the same analyses performed on its associated routine sample.

### **3.4 *Equipment Rinsate Blanks***

Equipment rinsate blanks will be collected during the field program to assess the effectiveness of the equipment decontamination methods. An equipment rinsate blank will consist of analyte-free water, which is poured over the decontaminated sampling equipment and subsequently collected in laboratory prepared sample bottles. Equipment rinsate samples will be analyzed for all analytes of interest for the media which the equipment is being used, i.e., metals, VOCs and/or SVOCs.

### **3.5 *Trip Blanks***

Trip blanks will be included in this program to evaluate the possible introduction of VOCs into samples during sample transit and storage. Trip blanks will include vials of analyte-free water prepared by the laboratory. As with other samples, trip-blank results could also reflect laboratory-introduced contamination as detected in method blanks. Trip blank samples will be analyzed for VOCs only.

### **3.6 *Field Blanks***

Field blanks will be included in this program to evaluate the possible introduction of VOCs into samples from external sources. This sample is created by pouring analyte-free water used in the field into a randomly selected sample container at the sampling site. Each field blank will be analyzed for VOCs only.

### **3.7 *Laboratory QA/QC Samples***

Laboratory QA/QC samples are samples generated by the laboratory and are used to monitor the day-to-day performance of routine analytical methods. The laboratory QA/QC samples provided by the laboratory are method blanks, surrogate spikes, and matrix spike/matrix spike duplicates. All laboratory QA/QC samples will be analyzed at a frequency which meets the requirements of the specific EPA SW-846 Method used.

### **3.7.1 Method Blanks**

Method blanks are analyzed to assess the level of background interference or contamination which exists in the analytical system and which might lead to the reporting of elevated concentration levels or false positive data. A method blank is analyzed with every batch of samples processed. A method blank consists of analyte-free water carried through every aspect of the procedure, including preparation, clean-up, and analysis. The results of the method blank analysis are evaluated, in conjunction with other QA/QC information, to determine the acceptability of the data generated for that batch of samples. The appropriate acceptance criteria are established by the laboratories in accordance with the contract laboratory program.

### **3.7.2 Surrogate Spike**

Surrogates spikes are organic compounds which are similar to the analytes of interest in chemical behavior, but which are not normally found in environmental samples. Surrogates are added to monitor the effect of the matrix on the accuracy of the analysis. Results are reported in terms of percent recovery. The appropriate surrogate compounds and acceptance criteria are established by the laboratories in accordance with the contract laboratory program.

### **3.7.3 Matrix Spike/Matrix Spike Duplicate**

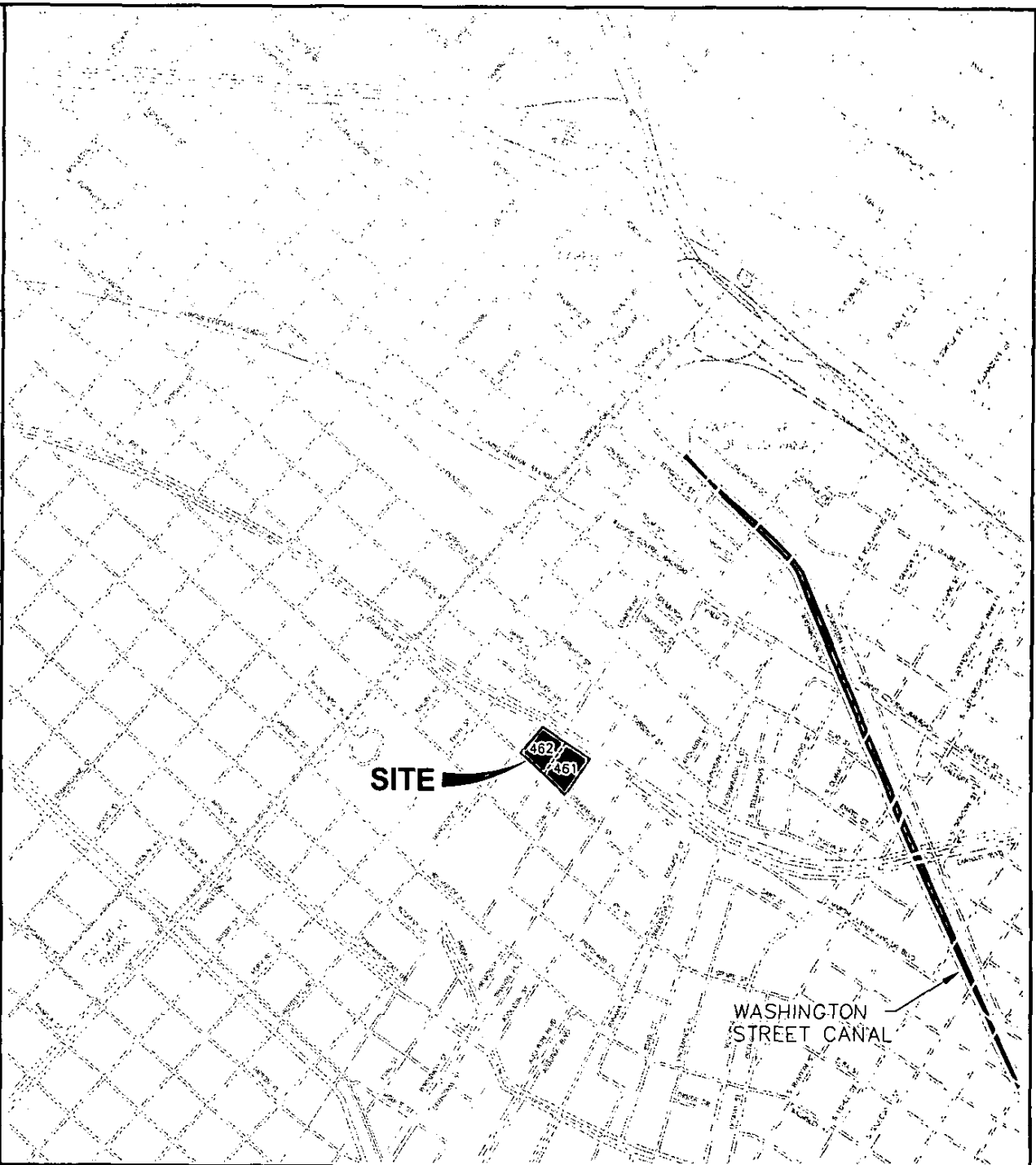
To evaluate the effect of the sample matrix upon the analytical methodology, the EPA has developed standard mixes to be used for matrix spike (MS) and matrix spike duplicate (MSD) analyses. The recoveries are determined and compared as a measure of accuracy and precision. The sample to which an MS/MSD analysis will be performed will be determined by the laboratory when an MS/MSD is not provided from a specific site.

### **3.7.4 Laboratory Control Samples**

Laboratory control samples (LCS) are solid or water samples of known and controlled matrix, spiked with known amounts of analyte from a source different from that used for the calibration standards. The LCS measures method performance under matrix-free conditions. The LCS results, together with matrix spike results, can establish the presence of any matrix effect.

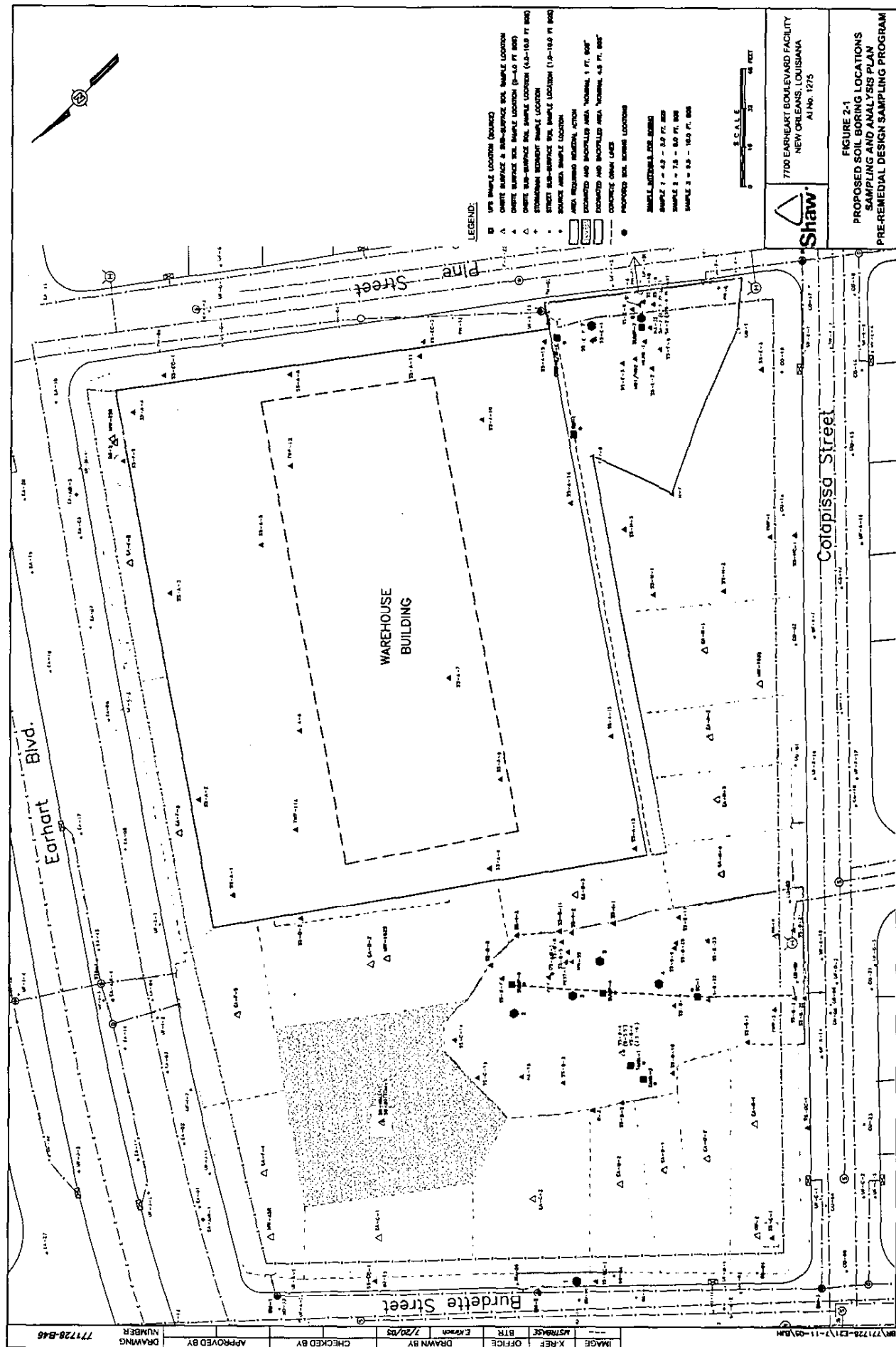
## ***FIGURES***

IMAGE	X-REF	OFFICE	DRAWN BY	CHECKED BY	APPROVED BY	DRAWING NUMBER
---	---	BTR	E. Kirsch	---	---	771728-A7



T H AGRICULTURE & NUTRITION, L.L.C.  
&  
ELEMENTIS CHEMICALS, INC.

**FIGURE 1-1**  
**SITE LOCATION MAP**  
**SAMPLING AND ANALYSIS PLAN**  
**PRE-REMEDIAL DESIGN SAMPLING PROGRAM**  
7700 EARHART BLVD. FACILITY  
NEW ORLEANS, LOUISIANA



***ATTACHMENT A***

***EXAMPLE FIELD FORMS***



DAILY LOG	DATE			
	NO.			
	SHEET	OF		

327C-12-98



Shaw Environmental & Infrastructure, Inc.

# ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD\*

Reference Document No. 6011

Page 1 of

White: To accompany Samples

Yellow: Field Copy

\* See back of form for special instructions.

Project Name/No. <sup>1</sup> \_\_\_\_\_ Samples Shipment Date <sup>7</sup> \_\_\_\_\_ Bill To: <sup>5</sup> \_\_\_\_\_  
Sample Team Members <sup>2</sup> \_\_\_\_\_ Lab Destination <sup>8</sup> \_\_\_\_\_  
Profit Center No. <sup>3</sup> \_\_\_\_\_ Lab Contact <sup>9</sup> \_\_\_\_\_  
Project Manager <sup>4</sup> \_\_\_\_\_ Project Contact /Phone <sup>12</sup> \_\_\_\_\_ Report To: <sup>10</sup> \_\_\_\_\_  
Purchase Order No. <sup>6</sup> \_\_\_\_\_ Carrier / Waybill No. <sup>13</sup> \_\_\_\_\_  
Required Report Date <sup>11</sup> \_\_\_\_\_

## ONE CONTAINER PER LINE

Sample Number <sup>14</sup>	Sample Description / Type <sup>15</sup>	Date / Time Collected <sup>16</sup>	Container Type <sup>17</sup>	Sample Volume <sup>18</sup>	Pre-Servative <sup>19</sup>	Requested Testing Program <sup>20</sup>	Condition on Receipt <sup>21</sup>	Disposal Record No. <sup>22</sup>
							FOR LAB	
							USE ONLY	
							FOR LAB	
							USE ONLY	

Special Instructions: <sup>23</sup> \_\_\_\_\_

Possible Hazard Identification: <sup>24</sup> No-hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Sample Disposal: <sup>25</sup> Return to Client ☐ Disposal by Lab ☐ Archive \_\_\_\_\_ (mos.)  
Turnaround Time Required: <sup>26</sup> Normal ☐ Rush ☐ QC Level: <sup>27</sup> I. ☐ II. ☐ III. ☐ Project Specific (Specify): \_\_\_\_\_  
1. Relinquished by <sup>28</sup> (Signature/Affiliation) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
2. Relinquished by (Signature/Affiliation) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
3. Relinquished by (Signature/Affiliation) \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_  
Comments: <sup>29</sup> \_\_\_\_\_

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Remedial Design Work Plan

Volume 1 of 2

Text, Tables, Figures, and Appendices A-E

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